

**THE CONCEPT OF ORIENTATION IN TEACHERS' THINKING AND  
PRACTICES IN BUSINESS EDUCATION**

**Liisa Tuulikki Torvinen**

**Thesis submitted to the University of London for the degree of  
Doctor of Philosophy**

**Institute of Education  
University of London**

**June 1997**



## ACKNOWLEDGMENTS

This thesis in itself is a proof of activity theory: one is never an individual only, but lives in interaction with society. This work is my work, and, at the same time, it is a combination of the efforts of a large number of contributors. Now, is the time to say: Thank you!

My thanks go first to Academy Professor Yrjö Engeström and the Finnish community around activity theory and developmental work research at the University of Helsinki for opening this world to me, and for being a continuous source of inspiration and support ever since.

Doctor Tony Burgess at the University of London, my tutor in the last phase of the thesis, always gave his full and warm support to my work and to me, and his positive attitude was decisive in the hard process of finishing the work. This thesis would never had started without the friendly initiative and tutoring by Professor Linda Thomas, Brunel University. Professor Harry Daniels was tutoring me firmly at the Institute of Education, University of London, before taking the chair at the University of Birmingham. Doctor Keith Wood, University of London and Brunel University, has been a true friend in everyday problems of how to prepare a thesis for the British context.

My dear principals and other colleagues at the Finnish Business College, Raimo Harlio, Kaija Hukka, Leena Härkäpää, Marja Michelsson, Seppo Peisa, and Tuulikki Tommila never refused from offering assistance and understanding during this process. In addition, Leena and Tuulikki shared my interest in orientation, thus contributing to the creation of this very project in the early 1990s. The open and dedicated attitude of all the nine teacher informants of this study encouraged me to go on with the process. The Foundation for Economic Education (Liikesivistysrahasto) gave substantial financial support for my studies.

There were friends and close relatives around me who knew how to say it in English: Carl-Fredrik Holmström, Michael Hughes, Tuula Kupari, and Ari Rytkölä. My dear son Johannes Salminen assisted in the creation of figures and gave his expertise in problems on EDP. My mother and my singing friends - and also those not singing - learnt even too well what it is like to live with a student; they assumingly learnt a lot of patience, too.

Once upon a time I was hesitating whether to take this project and whether I could manage it. Osmo, you who are my partner in good and bad days, you then said: "I will take you through." So you did.

## ABSTRACT

Orientation is a major, but still developing, concept in the account of learning in an activity-theoretical framework. In this thesis orientation will be conceptualised as forming a basic idea of an object (phenomenon, activity, action, performance) to be learnt, and an idea of how to proceed towards the object.

The research project of this thesis stems from activity-theoretical developments that have taken place at the Teacher Education Institute of the Finnish Business College (FBC) in Helsinki. The study will analyse nine cases of business college and polytechnic teachers to explore how they appropriate the new concept of orientation in their thinking and practices. At the beginning of this longitudinal study most of these teachers were completing their teacher education in the Institute.

The thesis is based on the distinctive and internationally appreciated, yet relatively little known tradition of activity theory. When dealing with the complicated relation between individual and society, the cultural-historical activity theory concentrates on such problem areas as objects of human activity systems and mediation.

The study follows teachers for three years to discover stages or transformations when appropriating the concept of orientation. The focus will be on teachers' developing interpretations about the concept and on their corresponding practices with orientation.

The thesis will theorise the following aspects of the data connected to the concept of orientation: (1) mediation and modelling, (2) representations of the object of learning, (3) the conception of active learner, connected to (4) the new concept of "Student's Space" in particular.



## TABLE OF CONTENTS

THE CONCEPT OF ORIENTATION IN TEACHERS' THINKING AND  
PRACTICES IN BUSINESS EDUCATION

## ACKNOWLEDGMENTS

## ABSTRACT

1	INTRODUCTION	11
2	BACKGROUND OF THE PROBLEM	16
2.1	Teacher education at the Finnish Business College	16
2.2	Activity theory and orientation	18
2.3	Pedagogical developments at the FBC	22
2.4	Exploratory study	24
2.5	Approaching the research problem	27
3	ACTIVITY THEORY	30
3.1	Activity theory and the concept of activity	30
3.2	History and development of activity theory	34
3.2.1	Vygotsky	35
3.2.2	Leont'ev and the levels of activity	45
3.3	The extended triangle of human activity	51
3.4	Individual or society?	54
3.5	Activity theory and choices of this thesis	57
4	ORIENTATION	63
4.1	Gal'perin and orientation	66
4.2	Davydov's theory	78
4.3	Engeström and the cycle of conscious learning	86
4.4	The thematic unit	91
4.5	Models and modelling	95
4.6	Orientation and this thesis	104

5	THE RESEARCH PROCESS	107
5.1	The maturing research problem	107
5.1.1	The start of the study	107
5.1.2	The respondents	108
5.1.3	A change of the focus	112
5.1.4	Definition of the research problem	115
5.2	Methodology	119
5.2.1	Qualitative research	119
5.2.2	Making choices between methods	121
5.2.3	The methods of the study	124
5.3	Data collection	129
5.4	Data analysis	134
5.5	Aspects of validity and reliability	139
6	INTRODUCTION TO THE RESULTS	144
7	THE FIRST ROUND OF THE STUDY, 1993-1994	
	"GROPING IN A COMMON FRAMEWORK"	150
7.1	The concept of orientation	150
7.2	The orientation basis and modelling	156
7.3	Orientation and the cycle (or spiral) of learning	165
7.4	Individual cases and practices of orientation	169
7.5	Remarks about the first round	184
7.6	The experienced teachers	189
8	THE SECOND ROUND OF THE STUDY, 1994-1995	
	"ESTABLISHING"	201
8.1	The concept of orientation	201
8.2	The orientation basis and modelling	206
8.3	Orientation and the cycle (or spiral) of learning	208
8.4	Individual cases and practices of orientation	211
8.5	Remarks about the second round	226
8.6	The experienced teachers	232

9	THE THIRD ROUND OF THE STUDY 1995-1996	
	"CRYSTALLISING - AND NEW HAZY AREAS"	243
9.1	The concept of orientation	244
9.2	The orientation basis and modelling	247
9.3	Orientation and the cycle (or spiral) of learning	248
9.4	Individual cases and practices of orientation	250
9.5	Remarks about the third round	258
9.6	The experienced teachers	262
9.7	Summary of the three rounds	271
10	THE CONCEPT OF STUDENTS' SPACE	274
10.1	Thoughts of a teacher	276
10.2	Signs of space	278
10.3	The challenges of Students' Space	284
10.4	Significance of space	291
10.5	Some theoretical aspects of the concept of Students' Space	293
11	DISCUSSION	295
11.1	Findings of the study	295
11.2	Various approaches of the informants	300
11.3	Modelling	306
11.4	Active learners and Students' Space	310
11.5	Interpretation of activity theory	312
11.6	Collaboration and the environment	313
11.7	Trustworthiness and the significance of the study	314
12	CONCLUSION	316
	APPENDICES	318
	REFERENCES	378

## LIST OF APPENDICES

1	Teacher Education at the FBC Teacher Education Institute in 1993-1994	318
2	Examples of thematic units	321
3	Instruction of orientation at the FBC Teacher Education in 1993-1994	323
4	Additional questions in the first interviews (1993-1994)	325
5	New questions in the complementary interviews of the first round (Spring 1994)	326
6	Inventory of the data of the study	327
7	Questions in the second round (1994-1995)	335
8	List of (preliminary) categories and codes in analysis	336
9	An example of a coded page	338
10	Criteria and procedure of studying the concept of Students' Space	340
11	Notes in the analyst's diary	342
12	A letter to all informants in Autumn 1994	343
13	A set of orientation bases of A's students (1993-1994)	344
14	Description of orientation bases of A's students (1993-1994)	347
15	Description of a thematic unit of A's students (Sports Shop) (1993-1994)	349
16	Two orientation bases by C's students (1993-1994)	353
17	Two orientation bases by D's students (1993-1994)	355
18	Two learning tasks by G (1993-1994)	356
19	Two orientation bases by H's students (1993-1994)	358
20	Description of the beginning of F's course on internationalisation (1993-1994)	360
21	An orientation basis by F's students (1993-1994)	362
22	A spontaneous orientation basis by a student of A (1994-1995)	363
23	A collaborative orientation basis by A's students (1994-1995)	364
24	A set of developing orientation bases by C's students (1994-1995)	365
25	A comprehensive orientation basis by C's students (1994-1995)	366
26	A learning task by E (1994-1995)	367
27	Orientation bases by D and her students (1994-1995)	368
28	Two orientation bases, questionnaire and discussion (F's students) (1994-1995)	369
29	A model by G's students	373
30	C's model about learning activity (1995-1996)	374
31	A model by C's student (1995-1996)	375
32	Summary of the results: the main ideas of the teacher informants	376
33	The researcher's articles, publications, and conference papers related to the thesis in 1993-1997	377

## LIST OF TABLES

1	A summary of the characteristics of the teacher interviewees	111
2	Notions of the student teachers about activity theory, 1st round	187
3	Notions of the (student) teachers about activity theory, 2nd round	230
4	Notions of the (student) teachers about activity theory, 3rd round	259
5	Notions of all teacher respondents about activity theory, three rounds	269
6	Aspects of orientation emphasised by the teacher informants	301

## LIST OF FIGURES

1	The mediated act	38
2	The basic structure of human activity	39
3	The Zone of Proximal Development	42
4	The hierarchical structure of activity	46
5	The extended model of the basic structure of human activity	51
6	Object-orientation in the triangle of activity	63
7	The subject and orientation	64
8	Elements of action according to Gal'perin	67
9	The cycle of conscious learning	87
10	The ideal thematic unit	94
11	Types of graphic orientation bases	98
12	The idea of orientation	104
13	The research problem within the Vygotskian triangle of activity	118
14	Interpretation of the concept of orientation (1st round)	151
15	Functions and characteristics of orientation (1st round)	152
16	Interpretation of the concept of orientation (2nd round)	202
17	Functions and characteristics of orientation (2nd round)	204
18	Interpretation of the concept of orientation (3rd round)	243
19	Functions and characteristics of orientation (3rd round)	245
20	Functions and characteristics of orientation: all teachers (3rd round)	270

## 1 INTRODUCTION

It is, probably, good to know where you are going - if you want to get there. A good map might be helpful as well. You had better know the goal and the route, and stick to them until you are there.

You need to know how to orientate.

Within the cultural-historical activity theory orientation serves also as a concept in teaching and learning. It originates from the Russian developments of this school, from P.J. Gal'perin (e.g., 1979) and V.V. Davydov (e.g., 1982) in particular. Researchers such as Talyzina (1981), Engeström (1984), Hedegaard (1988), and Haenen (1996) have also made a considerable contribution to the concept, with both theoretical and practical implications.

The concept of orientation is not yet fixed nor fully defined; it requires considerable additional elaboration. It is even difficult to give a precise and simple definition of it. In this thesis orientation in instruction will be conceived as the forming of a basic idea or a pattern of an object (phenomenon, activity, action, performance) to be learnt, and an idea about how to proceed towards the object. In a learning process the basic idea of orientation is often put into a model formed about the object. This model, a tool of learning, is called an orientation basis.

The cultural-historical activity theory deals with the relation between society and individual. Activity builds a bridge between them. Object-orientedness, emphasis on mediation, genetic explanation, and social aspects of activity are main principles of this theory. Though deriving from Russian research traditions of this century (e.g., from Vygotsky, 1935/1978 and Leont'ev, 1978), activity theory traces back to German philosophy, and even to philosophy of Spinoza. Since the 1960s and 1970s it has been advancing internationally: mainly elsewhere in Europe,

and in the USA. In the Nordic countries of Europe, in Finland in particular, activity theory has grown into a distinctive approach. The Finnish tradition includes theories of expansive learning and developmental work research (Engeström, 1987) which clarify particularly the perspective of work in activity theory.

The research project discussed in this thesis will concentrate on the concept and the phenomenon of orientation in business education (mainly adult education) and business teacher education. The theoretical pedagogical framework of the study is closely bound to the contents and principles of the programme of the Teacher Education Institute<sup>1</sup> of the Finnish Business College (the FBC) in Helsinki, Finland. The one-year programme for beginning business teachers is constructed and underpinned by principles of activity theory, and it aims at corresponding developments in practices of instruction. Orientation in learning, conceived as a part of learning activity, is a topic in the instructional theories taught to the student teachers<sup>2</sup> at the Institute.

I work as a teacher educator (as a supervising teacher of business administration) in this institute, having a business teacher background.

---

1 When finishing this thesis the institute was being reorganised. In 1997, it will become one of the 5 autonomous institutions of higher education for vocational teacher education in Finland being called the Helsinki School of Vocational Teacher Education. Because all the work done for this thesis concerns the time before reconstruction, names and circumstances will be described as they were during the study.

2 In this thesis *students* mean students (pupils) of (business) colleges and polytechnics. *Student teachers or beginning teachers* mean teachers who are completing their teacher education at the Teacher Education Institute of the Finnish Business College. *Teachers* mean any teachers (including student teachers).



Personally I learnt about orientation in instruction for the first time in 1988 when I was employed by the FBC Teacher Education.<sup>1</sup>

Though our student teachers are taught some of the theory of orientation during their course, it is not at all self-evident that theories just simply get appropriated and implemented. Activity theory itself, with its principles and tools, is not easy to grasp. The meta-theory nature makes activity theory rather a world-view than a learning theory in particular. In its implementations we are to deal with complex activity systems of society and complex teaching-learning environments. The task is not made any easier by various other complementary pedagogical paradigms that are also offered to student teachers during their programme. Orientation, though important, is only one concept of many.

Often in my evaluation discussions with student teachers in the spring towards the end of their programme, I have been pondering what really has been left in their mind. How have they appropriated the new concepts and practices they have been working on during the course? What will happen after teacher education? Do the student teachers continue to develop what they have learnt with us, and if so, in what way? What does take place in their teaching practices? What do they think about orientation? What is going on in orientation processes? What constitutes good orientation?

The research problem of this study came to have its roots in three questions: (1) How do business teachers appropriate the theoretical concept of orientation, (2) how are their interpretations of the concept possibly changing, and (3) how do these conceptions become visible in their teaching practices? The longitudinal study involved three academic years 1993-1996.

---

<sup>1</sup>

To make it simple, in the text the abbreviation "the FBC" will be used for the Finnish Business College and the abbreviation "the FBC Teacher Education" for the Teacher Education Institute of the Finnish Business College.

The research problem was not all that clear in the beginning. It was transformed and developed over the course of the project. In the first phase of the study (academic year 1993-1994) I was exploring nine cases of business college teachers (most of whom were studying at the FBC Teacher Education at that time) and their students in order to discover success factors in orientation processes: I wanted to find out what "good orientation" is. For this, it was also necessary to find out how the teachers perceive orientation. Quite soon a major feature emerged in the research process: The interviews revealed that the thinking and practices of the teachers might develop and be transformed in the process of the study, which was supposed to be extending over the following academic year (1994-1995). This idea of development prompted me to formulate the research problem anew: to concentrate on appropriation of orientation in teachers' thinking and practices over an extended period. In order to identify transformations better the project was prolonged to a longitudinal study of three years.

The main data was gathered from interviews with those nine business teachers. This data was supported by interviews with the students of the same teachers and by other authentic material from the teachers' practices of orientation. The nine cases were analysed using qualitative content analysis, complemented by grounded theory (Glaser & Strauss, 1967). The paradigm of developmental work research (Engeström, 1987; 1995), a kind of change strategy, was a supportive component in the methodology. It assisted in keeping the focus on transformations and in outlining how to report the process of development.

The pedagogical programme of the FBC Teacher Education is not the only background of the research project at hand. The project is also connected to some open theoretical questions of activity theory and orientation, and to problems in teaching practices experienced at the FBC Teacher Education. The background of the research problem will be discussed more in detail in Chapter 2 that focusses on the aims of the

programme of the FBC Teacher Education and on problems of orientation in practice in particular. Principles and problems of activity theory and orientation will be dealt only briefly in Chapter 2, because a thorough discussion about this theoretical framework of the thesis will be presented in Chapters 3 and 4. The theoretical chapters are quite extensive, since there are no single references that would deal directly with the activity-theoretical background needed in this research. Also the corresponding Finnish tradition is, though internationally appreciated, still relatively little known.

An account of transformations of the research problem in the beginning of the study will be reported as an opening for Chapter 5, which concentrates on the research process and the methodology. Results of the study will be discussed in five chapters, 6 through 10. Chapter 6 includes an introduction to the results. Chapters 7, 8 and 9 contain the results from the three rounds of the longitudinal study respectively, and Chapter 10 presents the concept of Students' Space in the light of the data of this study and with some tentative theory about the concept. Students' Space is a concept of my own creation related to activity of learners and the students' in a learning process. Ideas and arguments for the concept will be presented in Chapters 3 and 4. Chapter 11, Discussion, attempts summarising the findings of the study. The thesis will end with a short conclusion, Chapter 12.

Orientation is a complex phenomenon connected with complex activity systems within the multivoiced paradigm of activity theory. By interpreting thinking and practices of nine Finnish business teachers, this thesis aims at opening only some windows into the phenomenon, not at tackling it in its entirety.

## **2 BACKGROUND OF THE PROBLEM**

### **2.1 TEACHER EDUCATION AT THE FINNISH BUSINESS COLLEGE**

The Teacher Education Institute of the Finnish Business College specialises in business pedagogics, although lately offering general qualification for any teaching position. Yet most of the student teachers come from business colleges and polytechnics, and consequently the programme gives emphasis to business environments. The qualifying programme for beginning teachers covers one academic year. In addition, business teachers are offered further education in the form of a variety of brief courses.

Most of the student teachers entering the programme have an academic Master's degree. Alongside teacher education, they usually teach in business colleges and polytechnics located in various parts of the country, lately increasingly also in other educational vocational institutes such as adult education centres. All the student teachers have experience of working in business or in other fields of working life, many of them for quite some time.

The programme of the FBC Teacher Education aims at finding solutions to the challenges that the changing environment poses to people of modern society. Vocational education ought to develop learning processes that produce qualifications required in working life. Instruction needs to foster consciousness and independent thinking since, rather than receiving uncritically the rapid changes of today's society, people ought to be able to tackle the emerging problems and challenges in a progressive way. Collaboration and teamwork are important tools in this pursuit.

The one-year qualifying programme consists of general pedagogic studies, vocational pedagogic studies and teaching practice. A more detailed description of the contents and principles of the programme is presented in Appendix 1.

## 2.2 ACTIVITY THEORY AND ORIENTATION

The cultural-historical activity theory emphasises the connection between an individual and the environment (society, culture) (e.g., Vygotsky, 1935/1978; Leont'ev, 1978; Engeström, 1987; Miettinen, 1993). The context affects the individual and vice versa in complex interaction. One ought to be aware of this relationship. In teaching and learning, according to this, the learners are expected to be active and conscious of what they are doing (Vygotsky, 1935/1978, pp. 88, 90; Leont'ev, 1978, pp. 145-186). For learners in vocational education this means being aware of the complex context of working life and society - and being oriented towards real objects within that context. This fits well with the expectations in contemporary working life that a person ought to be creative and should contribute towards constructing his or her own working environment.

Object-orientedness is one of the major principles in activity theory (Leont'ev, 1978). In vocational (business) education the objects can be researched by analysing real work practices which are embedded in activity systems of society. At the FBC Teacher Education we have focussed on such work practices which are changing, in order to help learners in vocational educational institutes face the changing demands of working life. In learning activity, how the learners are oriented towards the object of learning (the activity under study), how they learn to discover the basic principles of the object, and how they analyse and organise the learning process are crucial. The first two of these features are the two main characteristics of the concept and phenomenon of orientation: forming a basic idea about an object and about how to proceed to it. This is a simple definition based on articulations by Gal'perin (e.g., 1979), Davydov (1982; 1988b), and Engeström (1982; 1984; 1994).

Gal'perin (1992, p. 56) argues that orientation is the core of mental activity: "the most important and difficult behaviour is that involved in

acquiring a correct orientation". He also created the concept of orientation basis (Gal'perin, 1979). Ideas about modelling a phenomenon to be learnt and about modifying the model come mainly from Davydov, from his theory of "ascending from the abstract to the concrete in instruction" (Davydov, 1982, pp.37-44; 1988b; Engeström, 1991; 1995). In a learning process, when the learner analyses and "handles" the object of learning, its basic idea becomes many-sided, richer and more stabilised.

Orientation is not only connected with the concept of object but also with the concept of mediation. Vygotsky (1935/1978, pp. 39-40) argued for the mediatedness of human actions. The human being is connected to society by tools and signs. In activity a subject is not in direct contact with an object, but the activity is mediated by various instruments. Also, orientation as activity and orientation basis (a model, for example) are instruments in mediation. The concepts of orientation basis and model will be discussed in detail in Chapter 4.

### **Putting orientation into practice**

In business teacher education we have had two complementary tools available to manage learning processes: (1) the cyclic or spiral model of conscious learning and (2) the thematic unit. The learning cycle is a theory and method put forward by Engeström (1982, 1994). Thematic units are entities larger than the traditional lesson, being usually a sequence of tens of lessons (e.g., Miettinen & Kinnunen, 1989). These entities focus on a theme that is built around key activity or actions. The units are built in accordance with the cycle of conscious learning: A thematic unit is the totality of a "big theme" that the learning cycle covers (examples in Appendix 2). The learning cycle and the thematic unit will be discussed in detail in the theoretical part, Chapter 4.

Orientation is a focal point in the cyclic or spiral model: Applications of orientation take place as part of a learning process. In a thematic unit it

is crucial to understand the process-like nature of learning, and at the FBC we point out the importance of finding the core idea and the principles of the phenomenon under study (Davydov, 1982; 1988b). This is the point where we deal with orientation. Modelling the phenomenon (making orientation bases) is a way of approaching the core. In a typical case a student teacher implements a thematic unit during teacher education, mostly in collaboration with a few other student teachers, and perhaps one or two more units in his or her own school. (See also Appendix 3, on instruction of orientation at the FBC Teacher Education.)

In their pedagogical studies the student teachers get acquainted with a variety of pedagogical theories each requiring some attention. Although activity theory provides the underlying idea for the structure of the teacher education curriculum, the theory itself is introduced to the student teachers quite briefly, and not nearly as extensively as in the theoretical part of this thesis. In fact, activity theory cannot possibly be presented as a learning theory as such. It is rather a meta-theory or a philosophy beyond learning and instruction, thus often being complementary to other theories. The basic theories of orientation (Gal'perin, Davydov, and Engeström) are taught to the student teachers approximately as they are presented in this thesis, but there is not much time to discuss the theories. They are supposed to be trained in practice, but depending on what groups a student teacher happens to work with the training experiences vary. The various combinations of groups or teams they belong to over their year of study may emphasise quite different pedagogical areas. This also depends on the interests of the supervising teacher tutoring the group. The application of activity theory and orientation may thus be uneven and fragmentary.



**Orientation in vocational teacher education**

The Finnish vocational teacher education institutes have not been given any official rules as to the pedagogic approaches to be used in their curricula. The programmes of the institutes thus may largely differ from one another. The FBC Teacher Education has cherished activity theory as one of the bases in its curriculum and, within it, the concept of orientation. This paradigm is not characteristic - not at least in a definitive role - of the other corresponding institutes of the country. Thus the concept of orientation, conceived activity-theoretically, may appear not at all in their programme.

Also in the FBC Teacher Education the concept of orientation is one of many in the curriculum. There are two reasons for that. First, orientation is just one theoretical domain of activity theory. Secondly, activity theory is not the only pedagogic paradigm offered to student teachers in the institute (see Appendix 1, Sub-section 2.3, in more detail). The emphasis on activity theory in our institute derives from the large developmental project in 1986-1991 put forward by Reijo Miettinen. This project will be discussed in the next section.

### 2.3 PEDAGOGICAL DEVELOPMENTS AT THE FBC

At the end of the 1980s a period of pedagogical developments began at the FBC Teacher Education. The implementation took place under guidance of an outside expert, Reijo Miettinen, who later wrote his doctoral thesis on the project (Miettinen, 1993). The project was based on activity theory and on the approach of developmental work research, a Finnish extension to activity theory (Engeström, 1987). One crucial question of the project was how to combine working life with students' learning in business colleges, and another question was how the student teachers could learn good methods for that integration. The project involved subject area analyses and planning of thematic units (which sometimes were even cross-curricular) in accordance with the conscious learning cycle.

Thematic units and analyses of both working life and educational systems were being established in practices of business teachers and teacher education, but there were still problems enough in their implementation (e.g., Miettinen, 1993, pp. 234-237). For example, the theory of conscious learning and the idea of thematic unit seemed to become just a frozen model, a mechanistic pattern, for some student teachers.

Haavisto's study on student teachers of the FBC Teacher education in 1986 and on the same teachers a year later (Haavisto, 1990) showed the same tendency: the meanings of pedagogic theories were not easily appropriated (pp. 76 and 78), for example the orientation bases were being used quite sparsely (pp. 82-84).

Teacher educators are business college teachers so that we were also aware of some problems because of our own experiences from practice. Personally I felt discontented because of not truly being able to manage methods of implementation and because several concepts, orientation for example, remained somewhat unclear. In our teaching practices we seemed to be far away from the ideals of orientation that Miettinen (1993,

p. 241) presents: Orientation should construct a way of thinking rather than present various models of orientation bases. I asked what this meant and how to do it.

In 1990-1992 I was one of three supervising teachers (see Torvinen, Härkäpää & Tommila, 1992/1994) conducting deliberate experiments in instruction together with the college students at the FBC to gain clarity about the practice of both orientation and evaluation in learning.

We became better acquainted with orientation, but at the end of the project we still had a rather hazy notion of its scope. The problems we faced had to do with the concept of orientation, with the object of orientation, with its practices, and with the role of the students in the learning process. Orientation seemed to have many faces: We felt that it may be conceived in various ways. We tried to find out how to orientate towards real practices of working life. Furthermore, we also sensed the risk that only the teacher becomes orientated and nothing takes place in the students.

## 2.4 EXPLORATORY STUDY

What is orientation? This question was pushing me forward when I started my doctoral studies in autumn 1993. Being acquainted with the problems of practices of teaching and learning, I also thought of two further questions: What constitutes orientation and how is a successful orientation process to be put into practice? These questions formed the research task at the beginning. In order to have some clearer ideas about how to approach the domain of orientation, I carried out a small exploratory study to start with, since I had easy access to suitable material. Student teachers at the FBC Teacher Education in 1993-1994 had their usual exam of vocational didactics<sup>1</sup> shortly after the beginning of their studies, in August 1993. I had the opportunity to utilise some 60 exam papers.

The exam was based on a selection of Finnish pedagogic literature. One of the books (Miettinen & Kinnunen, 1989) dealt with the planning of thematic units, and another one with Miettinen's project at the FBC (Miettinen, 1993). These books include essentials about activity theory and also about orientation. The rest of the material (a few books and articles) concentrated on various other pedagogic theories and problem areas, on evaluation for example. The student teachers had studied the literature on their own as the lectures and practical exercises of the programme were scheduled to follow the exam in the autumn term. The studies were designed to be based on this exam to some extent.

---

<sup>1</sup>

In Finland didactics is conceived in a more comprehensive way than in Great Britain usually. With us, didactics involves planning, implementation and evaluation of instruction. In the implementations at the FBC Teacher Education, strong consideration of the context is characteristic.

Amongst several exam questions there were two which aimed at understanding (1) how the student teachers interpret the concepts of orientation and orientation basis in teaching and learning, and (2) how orientation and orientation basis could be implemented in instruction. In their answers, the student teachers usually made no distinction between orientation (as a phenomenon or activity) and orientation basis (as a tool). Furthermore, some students really did not know what to say at all. The answers mostly included one or two characteristics only, of which the following list is constructed:

Orientation bases explain and analyse activity. They help in the planning of instruction and in problem solving. Orientation bases are models that steer actions. They are models for thinking, or they are illustrations, maps, or "frames". Orientation bases are of different types, and they may imply parts and the whole. They have "many levels", and they can be complemented. Orientation bases are developing in the process of learning. They need to be good in various situations. Orientation needs time.

As to practices - how orientation and orientation bases work, or how to use them - there seemed to be more questions than answers. The student teachers did not have much to say about how to put orientation into practice, but they were listing associated problems and challenges. They might say that orientation is something odd, or they queried "How does orientation work in teaching and learning?", or "How can an orientation basis be made?", or "Are there techniques for orientation?" They presented problems: "The teacher is orienting, but the students do not become orientated!" Some of them asked: "What is its function?" or "Has anyone done this with his or her students, ever?!" or "Is it nothing but organising concepts?" Some student teachers stated that learners need to make orientation bases on their own and, in order to make them, concrete problems are needed.

Of course the variety of answers and the large number of problems can be explained by the fact that the student teachers were only in the beginning of their studies, but this may not be the whole truth. Orientation, and its practices in particular, really seemed to be difficult to grasp.

## 2.5 APPROACHING THE RESEARCH PROBLEM

My study began with the research task of finding and analysing features of successful orientation. The research problems were rather a family of questions which were expected to become more firmly bounded in the process of the study: What have the student teachers learnt about orientation in the course of teacher education? How do they interpret the concept of orientation? How do they put it into practice? What is good orientation? How will conceptions and practices change - or will they? Perhaps the student teachers learn in other ways, different from the expectations of teacher educators? When teachers learn, what is the effect on their teaching practices? Do the students notice any difference? - I was thinking of other teachers as well, not only student teachers: Could the possible shifts be similar with teachers who are not at all acquainted with the theory of orientation? Right from the beginning the study concentrated on nine business teachers. Seven of them were about to complete their teacher education at the FBC in the academic year 1993-1994. The additional two were experienced business teachers, who had completed their teacher training some 20 years earlier. (Further characteristics will be presented in Chapter 5.)

During the first year of the study a change occurred in the project, and the research problem began to mature. More and more signs of development, and stronger ones than I had expected, began to emerge in the respondents. I also began to become really aware of the fact that in order to study teachers' practices one first needs to be familiar with their thinking. The thinking effects the practices. What is the process of the teachers' appropriation like? What kind of transformations can be discovered in the teachers? These thoughts pushed the research problem forward to end up in the appropriation of the theoretical concept of orientation and on corresponding effects in the teachers' practices in a longitudinal study of three years. Maturation of the research problem will

be reported in more detail in the account of the research process, Chapter 5. The process of maturation was intertwined with ideas brought up by respondents in my early interviews. Also, the methodology could be definitely decided upon only in the course of this process. Additional problem areas or sub-problems that I had not quite been aware of in the beginning were also emerging in the answers of the teachers. These are:

Appropriation of the concept of orientation may be linked, for example, to the teachers' interpretations of activity theory and the concept of activity, thus illuminating the aspects of *activity and object* (object-orientedness). A current area of interest in education is that of being active, conscious, and collaborative. As was mentioned earlier, in the area of activity theory, Vygotsky (1935/1978, pp. 88, 90) and Leont'ev (1978, pp. 145-186) have discussed the topic of being active and conscious, but since that it seems a rather neglected area. For example, reasons for being active in the learning process have not often been argued theoretically. My thoughts have often been revolving around the role of learners and their opportunities of being active in the learning process. A new concept, still rather vague, has been forming in my mind. I have called it the concept of "Students' Space". By this concept I (preliminarily) mean mental space, preferably a kind of freedom or autonomy, that the students have available in learning situations. The vague concept might be expanded and theorised in this study, in the area of orientation in particular, thus elucidating the perspective of *subjects* (active learners). The third interesting area is the one of *mediation*: this study might reveal something about the role of orientation bases and about the phenomenon of modelling in orientation, thus perhaps contributing to the area of *tools* in instruction.

These areas of the sub-problems are consistent with the elements of the mediated act by Vygotsky (1935/1978, p. 40) and the concept of activity (Leont'ev, 1978, pp. 62-68). A closer theoretical review is required to present these two theories and to argue for the areas of the sub-problems.



The Chapters 3 and 4 will basically deal with various theories relevant to the research problem of this study, but they also will offer some discussion in order to make certain problem areas of the theories explicit. This will elucidate sub-problems; a summary of some more detailed aspects of the these sub-problems will then be articulated in Chapter 5, intertwined with the presentation of the development of the main research problem.

### 3 ACTIVITY THEORY

#### 3.1 ACTIVITY THEORY AND THE CONCEPT OF ACTIVITY

In modern society we are connected with each other in many ways, by social and societal<sup>1</sup> relations, and by the larger contexts we live in. We are parties in various societal activities as, for example, work, education, and leisure time. These are not isolated areas either, but overlapping with other societal activities. In everyday life we go food-shopping, take a ride in a bus, write a letter, watch television etc., without thinking much about what part of a societal activity we are participating in by these actions.

The cultural-historical Activity Theory deals with questions of society and individual. It assumes that people are developing in a complex interaction between each other and the environment. For a human being the meaning of his or her separate actions emerges as a part of a larger activity. Activity is considered to have features such as (socially) mediated, collaborative and shared. This could also be expressed in another way: what an individual accomplishes is a part of a larger activity - and depends on what the other parties of society have accomplished when fulfilling various tasks in various contexts. The dependence requires collaboration, at least to some extent.

Activity theory has experienced several developments during its history, from the origins in the Soviet Union of the 1920s and the 1930s to the

---

<sup>1</sup>

Chaiklin (1993, p. 399) defines social as referring to direct interactions between individuals, and societal as referring to actions in response or relation to institutions and traditions.

worldwide and multifaceted conceptions of today. Engeström (1990b, p. 69; 1993, p. 64) has implied its state of art in this way<sup>1</sup>:

"When I write about *the* theory of activity, I am using a double-edged notion. On the one hand, it is necessary to emphasize the unique and self-consciously independent nature of the Soviet cultural-historical research tradition, which today is called activity theory (see Leont'ev, 1978; Leontyev, 1981; Wertsch, 1981). On the other hand, this tradition is not a fixed and finished body of strictly defined statements - it is itself an internationally evolving, multivoiced activity system."

According to activity theory the level of activity is societal. Activity is actually often conceived to be multilevel, thus making a distinction between three concepts or hierarchical levels: activity, action and operation (routine). The meanings of separate actions and operations are derived from the pertaining activity. An action, such as writing an article for an educational monograph, needs connections to culture and society. There we have the writer, his or her background (for example, education and colleagues), and a personal computer produced by a manufacturer. There is a place to write, built and furnished by other people. There is a division of tasks among writers, who writes and what for the book. In this example an action is bound to several large overlapping societal activities or activity systems, such as education, communication systems, social relations, and production of goods. It is not simple to find all the activities that the writing is linked with, or to make strict boundaries between them.

There have been interesting debates about the various meanings of activity, and, consequently, the genuine contents of the Activity Theory. (See, for example, discussions in the 1st international congress on activity

---

1

In all quotations of this thesis "..." means a pause in the text of the person. "(...)" means that words or sentences have been left out. "[any text]" means explanations added by the author of the thesis.

theory in Berlin in 1986 in Hildebrand-Nilshon & Rückriem, 1988.

Every now and then the discussion is also going on in the international electric network of "xmca", originated from the University of San Diego.)

The difference of contexts where the theory of activity has been developed extends this question. The cultural-historical school stems from a distinctive Soviet context of the 1920s, and it took practically 50 years until it became better known in the West. The interpretations of our time are emerging within societies that considerably differ from the social order of the early Soviet Union. From the perspective of our time it is not easy to distinguish between the philosophical, political and purely theoretical or scientific notions of that society.

One important problem are the translations of the concept of activity in different languages. In international discussion this has been a problem mainly when translating from German and Russian into English. (See, e.g., Schurig, 1988.) The Russian word "deyatelnost" is often considered the basis of translations for "activity", but actually one should take the German word "Tätigkeit" first. The Russian cultural-historical school is build to a great extent on the heritage of the classic German philosophy (Haenen, 1996, p. 96). In this philosophy a given philosophical aspect has been attached to the concept of "Tätigkeit" (Lektorsky, 1995), for which the Russian "deyatelnost" is a good equivalent (see, e.g., Leont'ev, 1972/1981, p. 42). Both of them mean activity of long duration aiming at development. "An activity is a process characterized by constant transformations" (ibid., p. 65). Davydov (1990, 1995) has strongly underlined the aspect of change as included in the interpretation of the word "deyatelnost". He has warned about carelessness in translation and interpretation.

The English translation for this concept is "activity". Though not satisfactory, it will be used in this thesis as it has become generally established. Activity in the English language has been considered the closest approximation, but not quite adequate and equivalent (Wertsch, 1985, p. 210).<sup>1</sup> The English "activity" does not necessarily involve the meaning of a (possibly changing) phenomenon of long duration.

---

<sup>1</sup>

There is also the word "Aktivität" in the German language which has about the same meaning as the word activity often has in the English language, as for example "several leisure time activities", "there are many activities going on in the classroom".

### 3.2 HISTORY AND DEVELOPMENT OF ACTIVITY THEORY

The cultural-historical<sup>1</sup> activity theory has grown into a wide interdisciplinary school that is connected with various disciplines such as pedagogics and education, psychology, sociology, semiotics, linguistics, economics, politics, human communication, and anthropology. The roots of activity theory are mainly to be found in the Soviet Union of the 1920s and the 1930s, in cultural-historical theories of Lev Vygotsky (1896-1934). Yet the origin is even beyond Vygotsky, namely in philosophy of, e.g., Spinoza, Kant, Hegel and Marx (Davydov, 1988a, p. 21, 1990; Haenen, 1996, pp. 92-93, 97; van der Veer, 1984).

Alexei N. Leont'ev (1903-1979) and Alexander Luria (1902-1977) made considerable contributions to the development of Vygotsky's theories. Pjotr Gal'perin (1902-1988) and V.V. Davydov (b. 1930) expanded activity theory in the area of teaching and learning - they both have been particularly influential in the corresponding Finnish developments.

After the 1950s, publications of the cultural-historical school began to appear also in English, German, and other languages. In the USA and in Europe several productive and multivoiced expansions have grown out of the Russian approaches (Cole & Engeström, 1993, p. 11). At least two dynamic movements based on Vygotsky can be distinguished today. One is dedicated to socio-linguistic and semiotic issues, and the other to research of activity. Both movements have been involved in the whole range of approaches that the cultural-historical school gives space to, namely the focus on the individual, the focus on the context, and the focus on what there is in between. In a way, monism is a characteristic of activity theory: from the same basis of one initial idea various kinds of new theories, concepts and applications have evolved (Engeström, 1990a,

---

<sup>1</sup> Equivalent or related terms for the adjective "cultural-historical" that a reader meets in the activity-theoretical literature are terms such as "sociohistorical", "sociocultural" and even "cultural".

p. 2). The contemporary American research in this field is perhaps more devoted to the semiotic issues, and activity-based research is more characteristic of the Northern, Central and Eastern Europe.

In the field of education, activity-theoretical or sociocultural research is today involved in issues such as learning in the school context (Davydov, 1982, 1990; Engeström, 1982, 1983, 1991, 1994; Hedegaard, 1988, 1990; Lompscher, 1982; Miettinen, 1993), learning in everyday situations (Lave, 1988; Lave & Wenger, 1991; Rogoff, 1990; Rogoff & Lave, 1984) and learning in work, or organisational learning (Engeström, 1987, 1990b, 1993, 1995; Kuutti & Bannon, 1991; Kuutti & Pihlaja, 1995; Miettinen 1985, 1991, 1993; Mott, 1992; Toikka, 1984; Virkkunen, 1995). In addition, the interest in cognitive and developmental psychology among the disciples of the cultural-historical school often contributes to issues of learning, too.

### **3.2.1 Vygotsky**

#### **Vygotsky's heritage: individual - society**

In his short life<sup>1</sup> Lev Vygotsky became acquainted with several disciplines. By the time of the Russian revolution in 1917 he was making a name as a literary critic (Joravsky, 1987, p. 189), but later he became acquainted also with law, linguistics, philosophy, psychology, and semiotics. He has written about methodology and the history of

---

<sup>1</sup> Vygotsky died of tuberculosis at the age of 37 leaving a heritage of two short books, and plenty of papers and manuscripts. He seems to have lived in haste and worked under pressure (Simon, 1987, p. 610).

psychology, about psychology of art<sup>1</sup>, about psychology of abnormal development and about clinical neurology (Davydov & Zinchenko, 1993, p. 93).

Vygotsky's theory of the development of higher mental functions became the core of the cultural-historical theory. This basic idea has been called the "general law of cultural development". Three dimensions within it have been emphasised as the basic message of Vygotsky's theoretical framework. In order to understand these dimensions, one needs to consider their mutual relationship. In fact, they should not be presented in isolation, but for reasons of clarity this is often done. These basic three themes are (Vygotsky, 1935/1978, pp. 40, 54; see also Cole, 1977, 1988; Davydov & Zinchenko, 1993, p. 99; Wertsch, 1985, pp. 14-15; 1991):

1) A genetic explanation or a developmental method is the key to all aspects of human mental functioning. In order to understand mental functioning, one needs to understand its origin and transitions - the experience of previous generations explains the present. Within this argument, Vygotsky underlines historicity and gives the fundamentals to the cultural-historical school.

---

<sup>1</sup> Joravsky argues that neither the Russian disciples nor the interpreters in the West have shown interest in Vygotsky's psychology of art where he tried to show how art could build a bridge to the social and biological context of human beings (Joravsky 1987, p. 194). Vygotsky's doctoral dissertation "The Psychology of Art" was finished in 1925, but was not published until 40 years later. Joravsky also points out that when Vygotsky, after a promising start in art, moved to psychology, he concentrated on theorising, not on experimental research. (See more in Joravsky, 1987; also in Kozulin 1986, p. 269).



2) Individual (or intra-mental) higher mental processes have their origins in social (inter-mental) processes. This aspect has been called the sociocultural account for development. Vygotsky himself articulates it (1935/1978, p. 57):

"Every function in the [child's] cultural development appears twice: first, on the social level, and later, on the individual level; first *between* people (*interpsychological*), and then *inside* [the child] (*intrapsychological*)."

3) Mediation is the third theme, semiotic mediation in particular. Human social and psychological processes are fundamentally shaped by mediational means, by language in particular. We can understand those processes by understanding the mediating signs, or other tools, in them. A human being is connected to society by instruments (tools, signs) (*ibid.*, pp. 40, 54).

Wertsch (1985, p. 15) considers mediation the most important concept of Vygotsky. The sign systems (for example, speech) have an essential role in the process of internalisation, in transition from the interpsychological to the intrapsychological (Davydov and Zinchenko 1993, pp. 99, 102-103). Signs also enable the human being to create imaginary models of objects and to operate with them.<sup>1</sup> Cole (1988, p. 138) underlines the importance of mediation and genetic explanation: Cultural mediation is the unique characteristic of psychological processes, and we live in environments that are created "by the accumulated tool/culture intermediated interactions of prior generations".

---

1

According to Davydov and Zinchenko (1993, p. 95) the emphasis of signs at the time of Vygotsky was related to the Russian symbolism manifested in poetry, theatre, and film, as in the works of the poet A. Belyi and the great filmmaker S. Eisenstein. Vygotsky, for his part, was well aware of contemporary art.

### Model of activity

Vygotsky (1935/1978, pp. 39-40) determined a basic structure of human activity: Stimulus/Subject - Sign/Tool(s) - Response/Object (Figure 1). The structure of sign operations requires an intermediate link between a stimulus and a response. This intermediate link, a [second-order] sign creates a new relation between those two elements. An individual needs to be actively engaged in establishing that link, he or she controls his or her behaviour from outside (ibid., p. 40).

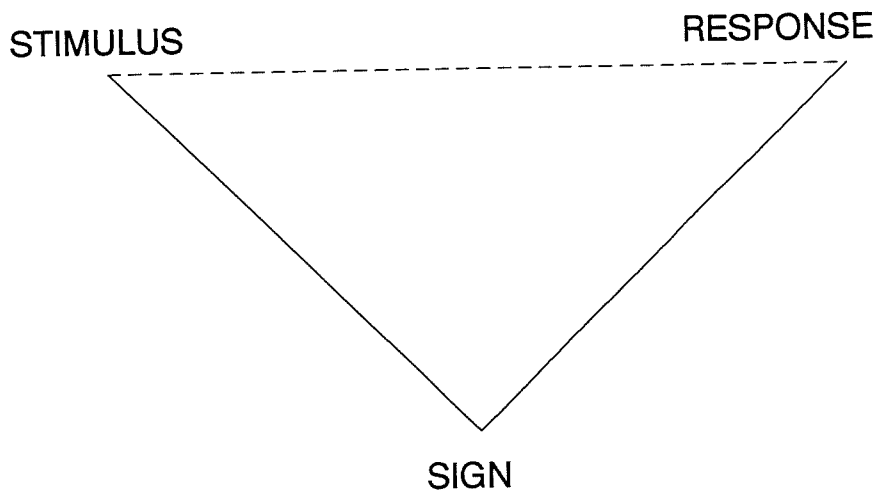
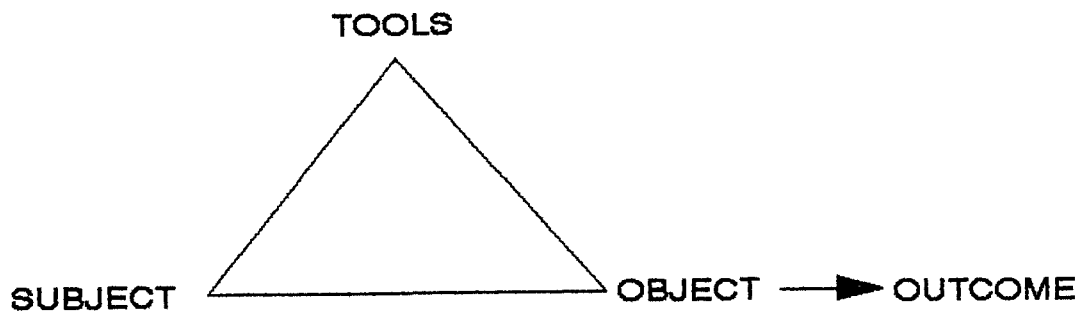


Figure 1. *The mediated act*<sup>1</sup> (Vygotsky, 1935/1978, p. 40)

---

<sup>1</sup> The expression of mediated "act" is used in the 1978 translation. In the next Figure (2) simply the term "activity"

A reverse action is also included: the tool<sup>1</sup> or the medium between the subject and object may influence not only the object, but also the subject. The tools regulate the subject's behaviour. They can be categorised as signs and marks, mediating artefacts, cultural instruments, material tools and so on. Vygotsky's model is reshaped by Engeström in Figure 2 (Cole & Engeström, 1993, p. 7; Engeström, 1983, p. 94; 1984, p. 95; 1991, p. 245; 1995, p. 45). Engeström's model contains the same elements as the one of Vygotsky. In addition, Engeström presents the outcome: activity aims towards some outcome, towards development. For example, work is a significant activity in society. In order to have a favourable outcome of work, the human being influences the object of work with the aid of various tools. (Engeström (1987) has elaborated even a more extensive model of activity that can be considered the fundamental model in Engeström's further theories, see Section 3.3. ahead.)



*Figure 2. The basic structure of human activity (Engeström, 1983, after Vygotsky)*

---

will be used.

<sup>1</sup>

In this text the concept of a tool is conceived broadly, covering both material and psychological (or symbolic) tools. Engeström (1987, p. 59-60) refers to differences Vygotsky presents between those (Vygotsky, 1935/1978, p. 55; 1981, p. 137).

In more detail the elements of the model are to be explained in the following way (see, e.g., Cole & Engeström, 1993; Engeström 1990b, p. 79; Kuutti & Pihlaja, 1995, p. 13):

(1) The subject refers to the person (individual) or the group whose agency is being analysed within the activity in question. The group may be, for example, a workplace such as a health centre, a school, or a company - or a smaller team within them.

(2) Mediating artefacts, both the material and the symbolic ones, are tools at the disposal of the subject. The range of tools or instruments is broad (material, physical, abstract, mental, conceptual, psychological tools; or marks, signs, symbols, and so on). The subject modifies and manipulates the object with these instruments. The tools have been developed in the course of history and they are often typical of their respective societies and cultures. There is no activity without tools:

"The notion of a non-mediated totally 'natural' and direct collective remembrance is a fallacy. Mediating artefacts, both external and internal, are always present in human activity. Even internal actions of remembering are mediated by cultural artefacts. We may try to describe and understand them as social representations, or as mental models. Even a word and an image are cultural artefacts, not reducible to purely individual or biological origins." (Wertsch, 1987; pp. 19-22)

(3) The object refers to the "problem space" (a phenomenon, a system, a human being, a group of people, etc.) towards which the activity is directed, and which the subject tries to influence (with different tools).

(4) The outcome refers to outcomes that the activity (or the activity system) in question produces in the object: results, implications, or consequences, for example.

## The Zone of Proximal Development

Vygotsky's concept of the Zone of Proxim(al)<sup>1</sup> Development or the ZPD (ZoPD, Zoped) is useful in studying development of human beings. It refers to the space or distance between the learner's current developmental level and the potential level that he or she might attain assisted by more experienced peers or teachers, thus including the aspect of learning as social activity (Vygotsky, 1935/1978, pp. 88, 90). Vygotsky talks about a child in his description:

"It [the ZPD] is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (ibid., p. 86).

There are several interpretations about the ZPD. Bruner (1986, pp. 73-78) approaches it with the concept of "scaffolding". In scaffolding the teacher assists learners by directing their attention towards what is important, towards the growing edge of their competence. Levine speaks about "strategic assistance" (1993, p. 306). The point of assistance in the ZPD has been discussed also by Tharp (1993) and Tharp & Gallimore (1988).

Newman, Griffin and Cole (1989, pp. xii and 61) argue for a broader meaning for ZPD than just scaffolding. Their concept of "construction zone" is characterised by synergy of people, by joint activity (see also Cole, 1985, p. 156). By working together, rather than alone, they can attain better results. Collaboration typically includes social negotiations, appropriation of each other's views and interactive systems.

---

<sup>1</sup>

In Russian "zona blizhaishego razvitiya". According to Minick (1987, pp. 119-120) and Newman, Griffin and Cole (1989, p. 61) the Russian word "blizhaishei"/ "blizaishego" preferably ought to be translated "nearest" instead of "proximal" or "next". Rogoff and Wertsch (1984, p. 1) suggest "closest".

The Zone of Proximal Development also means a dialogue between learners and their future (Engeström, 1994, p. 128). Hedegaard's (1990) articulation for the ZPD as a powerful tool for class instruction is based on her study on teaching experiments with Danish children.

The concept of the ZPD has mostly been connected to learning of children and young people. Illustrations from adult education are rare, one example being Virkkunen's (1990, p. 182) idea as represented in Figure 3. He pictures the ZPD as an arena and a path to a more advanced way of working. Signs of a new way of working are emerging, pushed by contradictions in the prevailing way of working and disturbances. There is an opportunity of a more advanced way of working further on.

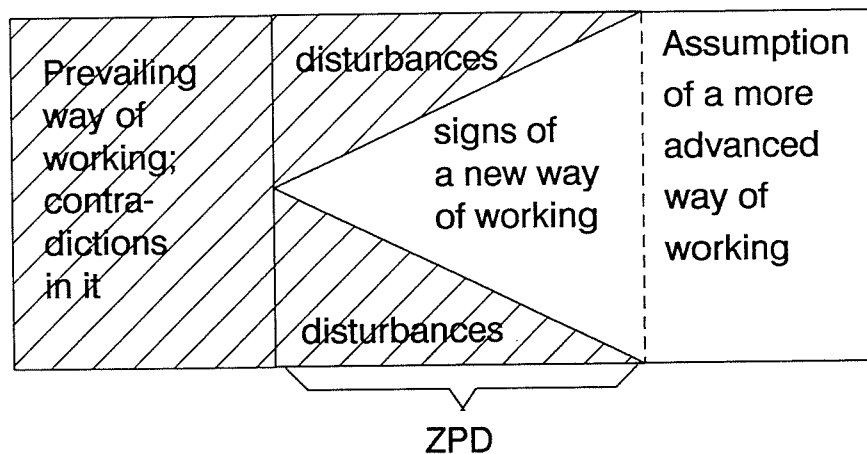


Figure 3. *The Zone of Proximal Development (Virkkunen, 1990)*

### Fractures in Vygotsky's theorising

"Prophets, as of old, proclaim a new order. However, like priests in education, they rarely create the means of entry into the new order (...) Vygotsky [here] is more of a catalyst than a provider of a worked-out theory, which it is obviously not, nor has it ever pretended to be. In his short life Vygotsky used broad brush strokes to outline new images." (Bernstein, 1993, p. xxiii)

Vygotsky produced his basic work (over 160 titles) during the last eight years of his short life. Plenty of questions were left unanswered; incompleteness and contradictions are visible in his work. (See, e.g., Burgess, 1993; Daniels, 1993; Davydov & Radzikhovskii, 1985, pp.37-39; Haenen, 1996, p. 97; Hood Holzman, 1985, 350; Minick, 1985, p. 4; Wertsch, 1985; Wertsch & Smolka, 1993.)

"... one constantly encounters terminological carelessness and imprecision (...) According to his [Vygotsky's] students, some "carelessness of genius" distinguished Vygotsky generally. In addition, he was in a great hurry." (Davydov & Radzikhovskii, 1985, p. 39).

Scholars have been pointing out that social phenomena and large societal connections are dealt with in a fragmentary way in Vygotsky's works. The empirical studies were restricted to small groups only. They have been asking questions about tools of mediation and about social interaction, about procedures of joint activity versus individual activity, and about the concept of the ZPD. Vygotsky did not even have suitable terminology available, because no such thing existed in the 1920s (Davydov & Radzikhovskii, 1985, p. 39).

The very shortcomings of Vygotsky's work seem to have invited fruitful development. Presently a multitude of implications, interpretations, elaborations and developments have grown from Vygotsky's fundamental ideas. The concept of activity (conceived as a large social phenomenon) has been elaborated and so has also the concept of mediation with its respective tools.

### **Vygotsky and his disciples**

Vygotsky is considered the founder of a psychological theory based on the concept of activity (Davydov & Radzikhovskii 1985, p. 35), but the concept of activity was in fact developed within a "troika", a working group of Vygotsky that consisted of the scholars Vygotsky, Leont'ev and Luria. It existed since 1924 (Kozulin, 1984, p. 18; Wertsch, 1981, p. 15).

The so-called Kharkov<sup>1</sup> school emerged in the early 1930s. It signalled the beginning of a disintegration within the cultural-historical school. Some of the Kharkovites went on developing ideas of their own, and the semiotic aspects by Vygotsky were not of great interest to them (Bakhurst, 1990, p. 221). For the thesis at hand two of the Kharkovites are of special importance, Alexei N. Leont'ev and Piotr Gal'perin. Leont'ev made a considerable contribution to the theory of activity. He expanded Vygotsky's theories<sup>2</sup> by presenting the concept of activity

---

<sup>1</sup> People moved from Moscow to Kharkov (in Ukraine) because of the uncertainty of the Stalin era. Vygotsky, for example, was accused and banned for his "bourgeois" views. He was well acquainted with psychoanalysis and Gestalt psychology, and these were labelled anti-Marxist. Vygotsky himself did not move to Kharkov, but he was travelling between several places (see e.g. Bakhurst 1990, p. 213; Kozulin, 1986, p. 269).

<sup>2</sup> Kozulin (1986, p. 264) considers the succession between Vygotsky and Leont'ev a myth. He criticises the disciples of having made a "revisionist" version of activity that preferred practical ("material") actions to the role of signs as mediators



explicitly and by defining levels of activity (Wertsch, 1981, pp. 15, 17). According to Kozulin (1986, p. 271), Leont'ev's first sketches on the concept of activity are from 1947<sup>1</sup>. Piotr Gal'perin - not Vygotsky's student, but a Kharkovite - created a theory of orientation, of a phenomenon that he considered the principal basis and object in psychology. Although Vygotsky's disciples were elaborating ideas of their own, they obviously always regarded his work as foundation of the developing theory of activity (Davydov & Radzikhovskii, 1985, p. 36; Kozulin, 1990, p. 244).<sup>2</sup>

### 3.2.2 Leont'ev and the levels of activity

Although Vygotsky did not make a complete analysis of the concept of activity, his work includes the major features of later activity theory (Wertsch, 1981, p. 17). When he presented his model of the mediated act[ion/ivity] (Figure 2), a conceptual distinction between action and activity was not yet worked out. Only Leont'ev (1978, pp. 62-68; 1959/1981, pp. 210-211) distinguished three hierarchical levels in human activity. The hierarchical structure is schematically presented in Figure 4 (Engeström, 1990b, p. 197; 1995, p. 43). Activity is linked with object and motive, action with goal, and operation with conditions.

---

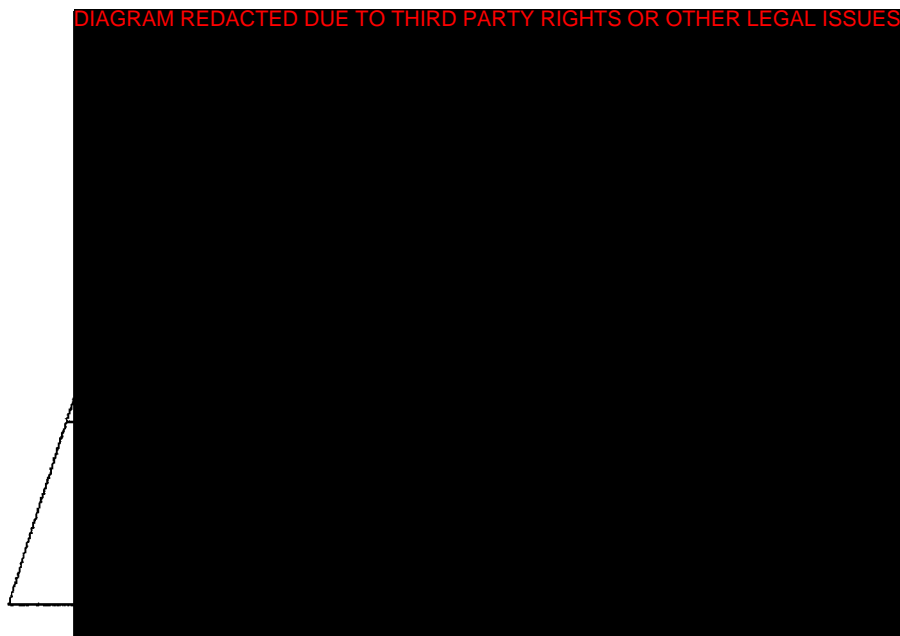
in human activity.

<sup>1</sup> Leont'ev's activity approach is argued to be in fundamental contradiction with several of Vygotsky's ideas (see e.g. Kozulin 1990, 245; van der Veer & Valsiner 1991). This point of view will not be dealt with further within this thesis.

<sup>2</sup> See also Haenen (1996, p. 70) about phases of development that can be recognised in Vygotsky's approach to psychology in 1924-1934, and about the relation to the Kharkovites.

## UNIT

## DIRECTING FACTOR



*Figure 4. The hierarchical structure of activity (according to Leont'ev, 1978, pp. 62-68, and Engeström, 1990b, p. 197)*

### Activity

Activity can be described as a phenomenon of long duration such as play for children or work for adults.

"Activity is the nonadditive, molar unit of life for the material, corporeal subject. In a narrower sense (i.e., on the psychological level) it is the unit of life that is mediated by mental reflection. The real function of this unit is to orient the subject in the world of objects." (Leont'ev, 1972/1981, p. 46; 1978, p. 50)

In the Leont'evian meaning activity is of a collective nature. For example, the work of a human being is connected with the work-activity system of a community such as a company, a school, or a hospital, and further with the entire work-activity system of society. These systems of

relations among individuals are historically conditioned. It is difficult - perhaps impossible - to find human activities where there would be no connections to other people, environment, history etc. In addition,

"...if we removed human activity from the system of social relationships and social life, it would not exist and would have no structure. With all its varied forms, the human individual's activity is a system in the system of social relations. It does not exist without these relations."  
(Leont'ev 1972/1981, p. 47)

Hunting is a well-known example of activity given by Leont'ev (1959/1981, pp. 210-213) to illustrate his idea. When members of a tribe are hunting, they individually have separate goals and they are in charge of diverse actions. Some are frightening a herd of animals towards other hunters who kill the game, and other members have other tasks. These actions have immediate goals, but the real motive is beyond hunting. Together these people aim at obtaining food and clothing - at staying alive. To understand why the separate actions are meaningful, one needs to understand the motive behind the whole activity. Activity is guided by a motive (Leont'ev, 1978, pp. 62-63), "...an activity's object is its real motive (...) There can be no activity without a motive..." (Leont'ev 1972/1981, p. 59). The motives are complex and difficult to define clearly. Most probably in everyday life people quite seldom think of them thoroughly. They are not consciously aware of them (Engeström, 1990b, p. 265).

The object<sup>1</sup> and the motive are intertwined. "The main thing which distinguishes one activity from another, however, is the difference of their objects. It is exactly the object of an activity that gives it a determined direction." (Leont'ev, 1978, p. 62)

---

1

The central role of object in activity theory has been discussed, e.g., in Asmolov (1986-87) and in several works by Davydov.

One could also say that the entire activity itself makes the object, or that the object is nothing but activity. There is another entire activity system embedded in the object itself or behind it (Engeström, 1995, pp. 69-70). The object is not static nor clear-bordered, it is constantly moving and developing.

### **Action**

Activity is realised in individual goal-oriented actions (Leont'ev, 1972/1981, p. 59). Human activity exists only in the form of an action or a chain of actions. Although actions are aroused by the motive of activity, they seem to be directed towards a goal (Leont'ev, 1978, p. 63). The concept of goal is closely tied with the concept of action (actions have goals rather than immediate motives). The one and same action can serve different activities (Leont'ev, 1978, p. 64; 1972/1981, p. 61; see also Kozulin, 1986, p. 272; Wertsch, 1985, p. 203).

### **Operation**

Actions, in turn, rely on smaller routine-like or automatic operations<sup>1</sup> that depend on the prevailing conditions.

"... apart from its [action's] intentional aspect (what must be done), the action has its operational aspect (how it can be done), which is defined not by the goal itself, but by the objective circumstances under which it is carried out.... I shall label the means by which an action is carried out its operations." (Leont'ev, 1972/1981, p. 63)

Operations are concerned with conditions. If the goal of an action remains the same and only the conditions change, it is the operational element that changes. Cutting a piece of a wood might require slicing or

---

<sup>1</sup> Wertsch argues (1981, p. 18) that Western psychologists have focused their research mostly on the level of operations.

sawing, one or the other operation depending on the conditions (type of the object, tools available etc.) (ibid., p. 63). "Every operation is the result of transformation of an action" (ibid., p. 64). The meaning of operations comes from the respective actions. Operations are usually something that we hardly notice anymore because we often deal with them subconsciously ("What do we do when riding a bicycle?") (Leont'ev, 1972/1981, p. 64; see also Lave, 1993, p. 18).

### **Relations between the three levels**

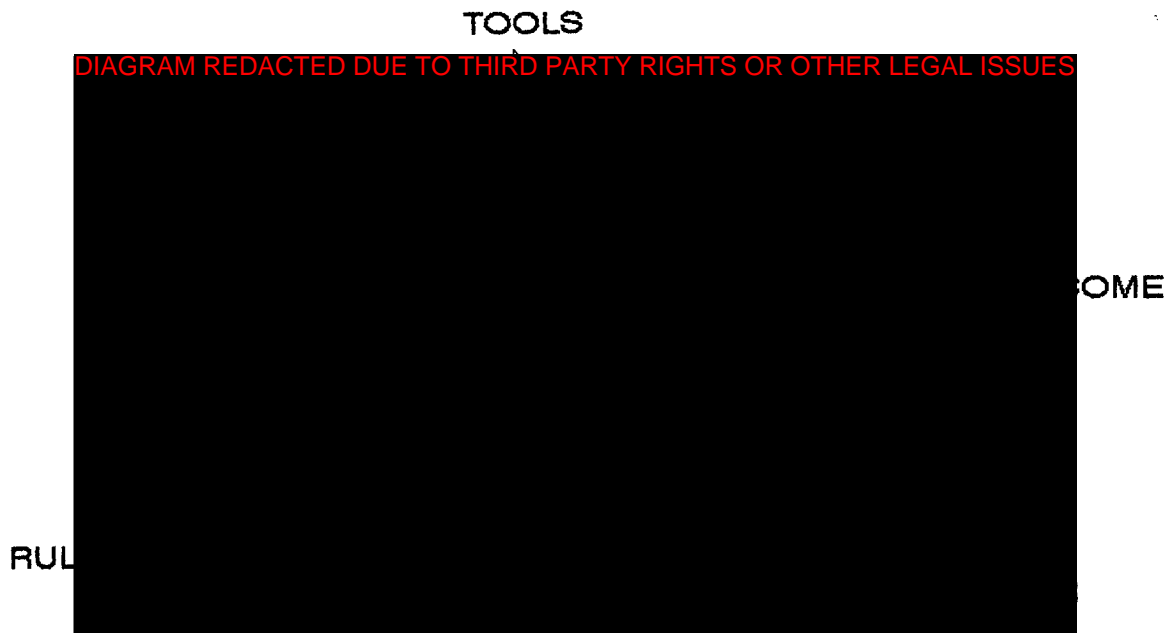
Continuous transformations take place between these three levels and no clear or rigid boundaries exist. The levels do not make a "frozen" hierarchy, but a living and moving process where activity, actions and operations mutually effect and change each other (Leont'ev, 1972/1981, p. 65). When actions are learnt well enough - through repeated practice, for example - they may become routine-like operations. On the other hand, actions may also expand into new collective activities (Leont'ev, 1959/1981, p. 401; Engeström, 1984, pp. 1-2; 1990b, pp. 172-173). For example, the lonely work (actions) on personal computers has expanded to a worldwide electronic network activity that in turn has connections with other activities such as education, marketing of goods, financial systems etc. Or vice versa, in a new and perhaps unexpected situation a routine-like operation may need reconsideration. It must be accomplished in a new way by taking extra care and by learning new aspects. For example, one needs to learn a new programme for wordprocessing. An operation becomes an action.

It is also useful to consider the time structure of actions and activities in order to get an idea of these concepts. Actions have a beginning and an end. They can mostly be described as stepwise procedures. Quite frequently we also speak about a set or a chain of actions. (Engeström, 1990b, p. 197). Activities, and activity systems, have their beginnings and ends, too. But, as Engeström (ibid., p. 198) points out, "the time scale

with them is too large to trace the exact moment of beginning and to anticipate the point of termination. It is more appropriate to talk about life cycles and developmental zones of activities." The time structure of activity is recurrent and cyclic. "An activity is systemic and self-organizing rather than finite and discrete" (ibid., p. 198). Radzikhovskii (1984-85) explains that "activity is a process, i.e., it takes place in time" (p. 38). In health care the respective activity does not end when a patient is cured (action). In education, when the school year ends, the activity of education still goes on. There will be other patients and other school years with students.

### 3.3 THE EXTENDED TRIANGLE OF HUMAN ACTIVITY

The Vygotskian triangle of human activity has been elaborated by Engeström into an extended model (1987, p. 78; 1990b, p. 79; 1995, pp. 45-47). The extension includes new elements about interaction between the subject and the activity system. The new elements are the community (organisation, society etc.), the rules and the division of labour. They are introduced in the bottom part of the model in Figure 5.



*Figure 5. The extended model of the basic structure of human activity (Engeström, 1987; simplified)*

a) The **community (society)**. Engeström here refers to all the people who, together with the subject, deal with the same object and aim at a common outcome. For example, at school the teachers (subject, community) share the same students, or, in a health centre the staff share the same population of patients. The connection between people need not be based

on the physical proximity or organisational borders; it is the common object that makes them a community.

b) **Division of labor** takes place between the members of this community: the tasks, the power and the benefits are divided between them.

c) **Rules** (social rules, rules about time and money etc.) regulate the actions taken by the subjects. The rules are not necessarily expressed explicitly. (Engeström 1987; 1990b, p. 172; Cole & Engeström 1993, p. 8.)

Figure 5 is a simplified version of Engeström's model. In the original version he considers also interaction between the elements of the model and presents additional factors (production, consumption, distribution, and exchange) that live a continuous process in an activity system. The extended triangle is a powerful tool in analysing activity, because it brings up interconnections between the elements and helps to reveal challenges and contradictions involved. For example, it has proved helpful in practical applications of developmental work research.

### **Developmental work research**

The paradigm of developmental work research (DWR) is an extension and an application of activity theory (Engeström, 1987, 1995). It can be understood as dynamic contextualism or a change strategy where research, practical developmental work and training (education) are combined (Engeström, 1995, p. 12; Kuutti & Pihlaja, 1995, p. 5). The cycle of developmental work research is emerging through zones of proximal development. The ZPD has been given a broader interpretation here.

DWR projects aim at solving organisational problems over a long term, so they usually last several years. Examples in Finland in the 1980s and the 1990s include janitorial companies, health centres, social work,



shipbuilding, banks, schools, courts, and management systems. A researcher has an active and key position in the project.

Analysis in the beginning of a project aims at making the contradictions within an organisation visible. To the community (a company, for example) the process means resolving the worst contradictions (problems) in their work while researchers try to support this journey and (through educational interventions) give the community the means to solve those problems. Simultaneously the development is being followed and analysed (Kuutti & Pihlaja, 1995, p. 12).

Although training interventions or other innovative interventions by the researcher characterise this method, the organisation in focus (the community under study) is expected to play an active role. It is one of the assumptions in the paradigm of DWR that human beings (and organisations) develop and learn while participating in the analysis of an activity, as they detect seeds of development and implement them.

### 3.4 INDIVIDUAL OR SOCIETY?

The relation between society and individual is a complex issue in activity theory. The primary questions are of an everlasting nature: Is it possible for an individual to be a self-directing agent, independent of societal conditions? Or, can human behaviour only be understood as a part of social interaction, related to the context, culture and society? The level of activity - according to Leont'ev - is social or societal. The focus is thus not on the individuals. At the same time this statement brings up a paradox: there is no social or societal activity without people.

Activities are made through actions. If the actions are not successful, the activity probably won't be that either. Actions are mostly put forward by individuals in their contexts. Thus, in the end, human beings make activities through actions and operations (Rogalski, 1995). The essence of activity is revealed by recognising and examining features of those. The details are needed - but still sustaining the frame of a larger whole.

Not only does activity (or context) influence individuals (and their actions), but also vice versa: the individuals (with actions) may influence the activity (the context). Both of these perspectives are necessary. Even Leont'ev and his colleagues argued that neither the external world nor the human organism is solely responsible for developing knowledge about the world (Wertsch in his introduction to Leont'ev's article, Leont'ev, 1972/1981, p. 38). Newman, Griffin and Cole (1989, p. 1) point out these relations when discussing cognitive change. (About discussion on the topic, see Hood Holzman, 1985, pp. 349-350; Daniels, 1996; Lucariello, 1995; comments to the latter by Cole and Engeström, 1995.)

Cole's statement (1981, p. viii) considers both of the views: the "activity" of activity theory includes both the individual and his or her culturally-defined environment.

With activity theory, one could also ask the question - which will not be dealt with here - whether it is necessary for a human being to understand activities and objects, and large phenomena, and whether it is relevant to be conscious in one's life. In the end this is a philosophic question, a question of world-view. I believe that it is meaningful to be aware of one's goals and motives. Otherwise there is the risk of following any trend uncritically. Yet there are also other, opposite, opinions - that this kind of attitude to life is not necessary, and that it can be even harmful.

### **Activity theory and cognitivism**

The polarity of social/societal and individual raises questions about the relation between activity theory and cognitivism<sup>1</sup>. Learning concepts of cognitive psychology, as quite often also those of humanistic psychology, conceive individuals as self-directing agents. They do not emphasise the individual's dependence on social and societal conditions:

"The standard cognitivist view identifies the given problems and knowledge domains - or the given individual's mental models and cognitive structures - as the context of problem solving, thinking and learning. This view excludes the societal and cultural aspects from its notion of context."(Engeström, 1993, p. 66)

Cognitive psychology concentrates on what takes place in the human mind, in thinking and consciousness. Cognitive structures, schemas, strategies, and similar issues concerning the individual are highlighted in its vocabulary. Presentations of whole large learning processes are rare, at least of the ones connected with a wider social or societal context. Learning is often classroom learning. Cognitivism does not focus on such questions as the origin of the curriculum, or of the substance to be learnt,

---

<sup>1</sup>

The concept of cognitivism is used here in a very general way, pointing at several concepts of the area. A sharper distinction is not made between various cognitive approaches, such as cognitive psychology, cognitive science, and cognitivism.

or where this substance can be used. (See Engeström, 1983, pp. 41, 48; 1987, pp. 95-105.)

There is no need to raise barriers between activity theory and cognitivism, but rather seek mutual combinations and collaboration, since the two approaches complement each other. For example, several Finnish activity-theoretical solutions in instruction have cognitive elements mixed in. Cole suggests that "activity" is the combining factor in the polarity of culture and cognition:

"There is a basic unit common to the analysis of both cultures' and individuals' psychological processes. (...) This unit consists of an individual engaged in goal-directed activity under conventional constraints. This unit is variously designated an 'activity', a 'task', an 'event' (...) From this common starting point, "activity", different analysts move in different directions according to their special interests [be it then basically social and societal, or concerning the individual]." (Cole, 1985, p. 158)

Cognition may also be regarded as a distributed phenomenon (Cole & Engeström 1993, p. 11), as a shared or common cognition between people. For example, pilots in an airplane share the cognition about how to complete a flight. In the 1980s this concept of distributed cognition (see, e.g., Hutchins, 1991, 1995) and the concept of situated cognition have built a bridge between the cognitive (individual) and the societal approach. Other concepts that attempt to combine the individual and the social or societal are the concept of socially shared cognition (Resnick, 1991) and the concept of everyday cognition and its relatives (Rogoff & Lave, 1984; Lave, 1988; Lave & Wenger, 1991).

### 3.5 ACTIVITY THEORY AND CHOICES OF THIS THESIS

Activity theory is not a fixed theory, but an evolving system. It tolerates multivoicedness and gives space to several understandings and interpretations. There is a benefit in this: activity theory is quite flexible to adopt new influences. Since it is quite abstract, in a way a meta-theory, it is durable and its basic assumptions are difficult to refute. On the other hand a broad theory is vulnerable: the connection with the details of everyday life is complex and difficult to construct. Concrete applications are required. This is a vital question in instruction where it often seems problematic to grasp activity - a wide framework like this easily appears too distant. When working with large entities, having a variety of factors to be considered, there is even the risk of losing sight of the object itself.

It is problematic to determine boundaries of activity. Even the concepts may vary: as related or equivalent with activity we meet with concepts such as cultural contexts, cultural practices, or activity systems (Cole & Engeström, 1993). The concept of local activity by Engeström (1990a, p. 9) is useful in practices of instruction. By local activity he means an activity system that is typical of a workplace, an organisation, or an institution. These systems are concrete enough to be grasped as (an) activity (unit).

I have made a deliberate choice within this thesis as to theoretical developments and interpretations of activity. Concepts of Activity, Action, and Operation are understood here in a Leont'evian way and have been extended by corresponding Finnish elaborations that mostly originate from Engeström's theories. The further choices made for the thesis arise from the developments of the FBC Teacher Education, which constitute one of the foundations for the empirical study of this thesis.

One of the questions emerging in this study might be whether, and how, the level of activity becomes explicit in contemporary instructional practices. This area has been rarely examined in research, Miettinen (1993) being one good exception. Even Leont'ev himself did not concentrate on developing the concept of activity through research, but dealt with the level of action in his empirical work (Engeström, 1995, p. 68).

The Leont'evian-Engeströmian choices of this thesis on the conceptual level do not deny other conceptions about activity theory. Given the multifaceted quality of activity theory, it is wise to agree with Cole (1981, p. ix): "Like any approach that attempts to provide an alternative world-view, it is difficult to grasp in its entirety and difficult to interpret in its details."

### **Active learner**

The three basic themes by Vygotsky (Sub-section 3.2.1) imply active participation and social sharedness. The notion that human beings learn within a social process is also explicit in this quotation:

"Human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them" (Vygotsky, 1935/1978, p. 88).

Leont'ev discusses activity and consciousness of the subject in his own text (Leont'ev, 1978, pp. 145-186). (On activity of the human beings, see also Davydov, 1990, p. 2 and Petrovsky, 1985, p. 22.) Leont'ev refers to the ideas of Vygotsky:

"... the genesis of internal mental activity from external activity (...) These ideas [of Vygotsky] came from his analysis of the features unique to human productive labor

activity, which is mediated by tools. This activity is initially social in nature, that is, it is developed only under conditions of cooperation and social interaction among people." (Leont'ev, 1972/1981, p. 55)

Today, there is nothing unusual in the emphasis of being active in learning. But what constitutes active learning? What point of view does activity theory take about it? For some people, the pedagogical principle, or method, of "action learning", learning within action may mean a synonym of "activity" of activity theory. Some people seem to conceive activity theory as "learning by doing". The concept of "learning by doing" is originally Deweyan, implying learning within and from practice (pragmatism). This idea has too often become a vulgar slogan only: Anything will do as far as it is some kind of "doing" or "being engaged".

Both with action learning and "learning by doing" an activity theorist easily asks: "What is that being active for?" or "What is the purpose of this doing?" and "What (really) is going to be learnt?" According to activity theory, learning is object-oriented. "Doing" only is meaningless, if there is not any clear object that gives reasons why (motives). In action learning one usually deals with an "active learner", but some other aspects typical of activity theory are perhaps omitted. In addition to the object-orientedness, those aspects involve emphasis on tools of learning (meaningful mediation), or the connection of objects with a larger framework. This will say that learning according to the principles of activity theory has potential to cover a considerably larger area than just "learning by being active". Action learning and learning by doing can be interwoven in the activity-theoretical solutions, but a method with the sole idea of a student as an active participant in the learning process is not enough for activity theory. The reason (and origin) of being active is perhaps not often clearly underlined within accounts of activity theory, and not within the FBC Teacher Education either.

### **Active learning and the concept of Students' Space**

Activity-theoretical arguments for activity can be found in the works of Vygotsky (1935/1978, pp. 88, 90) and Leont'ev (1978 (pp. 145-186).

However, after them there seems to have been less deliberate discussion and argument about accounts of "active learner". A relevant, perhaps decisive, factor in a learning process is what goes on between its participants. However, Vygotsky's statement that individual mental processes have their origin in social processes (ibid.) does not yet tell much about what exactly is involved in those processes. One may also ask the extent of adult guidance or "collaboration with more capable peers" that Vygotsky articulates (1935/1978, p. 86): How independent from these guides should and could the learner be? The vital question remains: What does assistance from more acquainted people involve?

This question is related to my ponderings; I have been thinking about what kind of opportunities students really have available to them for being active and having initiative. Being active, requires the mental flexibility to "move around". And moving, in turn, needs space. I would like to suggest here a novel, yet rather vague, concept of "Students' Space" to describe the area (space) available for learners to be active.

The concept of Students' Space is of my own creation. To begin with, I have understood and defined it as a mental or psychic space or area between the students and the teacher, yet mainly meant to be there for the students - to be used either collaboratively or individually. It ought to be extensive enough to allow the students' free moving, so they may look actively for solutions to the problems of the object to be learnt, and they may steer their learning process themselves - as independently as possible.

In traditional teaching there is probably not much of this space to be found; the teacher steers - sometimes dominating - the learning process.



The students assume that the teacher expects certain "right answers". For some time already, for example in Finland and certainly also in many other countries, the tendency has been to move away from this pattern. The entire issue is connected with the changes in learning cultures and learning concepts.

The concept of Students' Space might even have a lot to do with the concept of ZPD, particularly with some interpretations on the ZPD. When Cole (1985, pp. 154-158) argues that people in a joint activity learn from each other, collaboration seems to involve the notion of active learners. The "construction zone" by Newman, Griffin and Cole may foster interactivity as well: they articulate the ZPD as "the locus of social negotiations about meanings, and it is, in the context of schools, a place where teachers and pupils may appropriate one another's understandings" (1989, p. xii). Similarly in interpretations of the ZPD expressions of some kind of assistance (Bruner, 1986; Tharp, 1993; Tharp & Gallimore, 1988; Levine, 1993), of "a dialogue between learners and their future" (Engeström, 1994), and of "an arena towards a more advanced way of working" (Virkkunen, 1990) have been presented.

If the learners are meant to collaborate, and if they are meant to be active in learning, one asks what the teacher's role should be? I suggest that - at least in adult education - the teacher's assistance should leave as much autonomous (liberal) space to the learners as possible. The teacher might perhaps be more of a consultant in the process. My assumption is that this "free space" would promote active and conscious learning, and also collaborative learning. This assumption has been inspired by two ideas by Engeström : (1) Learning is activity of the student." (1994, p. 47) and (2) "ZPD is a terrain in which the participants have to find their own course." (Engeström, xlhc/mca e-mail discussion, 28 February 1994).

The concept of Students' Space - according to my notion - deals with the independence or autonomy of the students. Independence may be linked

to active and conscious learning, and to the students' opportunities of recognising their zones of proximal development. The concept is also connected with the relationship (collaboration) between the teacher and the students, and with collaboration of the students. All this deals with the subject of activity, the apex in Vygotsky's triangle (Figure 2) perhaps less considered in activity theory than the others.

The extent of the area of Students' Space may depend on several factors. When I argue that the learners should have as much space as possible, I am quite aware about not really knowing the extent and limits of the "possible". I am not aware of the factors influencing such an area either. This thesis might, on the basis of the data of this research, clarify and theorise some of the area of Students' Space. It might also illuminate useful examples from practice. I would like to define the concept better, or at least recognise some of its indicators and its characteristics. This search can be a by-product of the thesis only and it will be limited to the area of orientation. I will return to it at the end of Chapter 4 (Section 4.6).

#### 4 ORIENTATION

Orient means the East, where the sun comes from. Oriens is the direction of the rising sun (Webster's New World Dictionary, 1979). We may speak about orientation in a forest. We may speak about life orientation or work orientation. Orientation can be connected to several areas of everyday life.

In the introduction of this thesis orientation in teaching and learning was defined as the forming of a basic idea or pattern of an object (phenomenon, activity, action, performance) to be learnt, and an idea about how to proceed towards it. The basic idea involves the development of an imaginary model about the object, and it also includes a justification of the relevance of the object. In teaching and learning the models may be put into tangible form. The models, both the mental and the tangible ones, serve as means for orientation, as so-called orientation bases.

In the triangle of activity (Figures 2 and 6) the object is an important apex, since it gives the activity a determined direction, this object-orientation being a basic characteristic of activity. The motive is embedded in the object, thus giving orientation its meaning. (Leont'ev, 1972/1981, pp. 48 and 59; 1978, pp. 62-63)

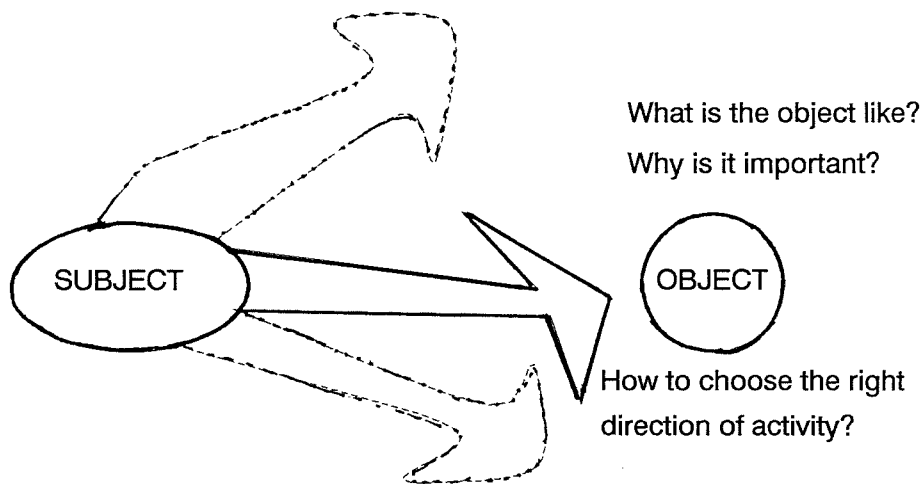
DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



*Figure 6. Object-orientation in the triangle of activity (based on Vygotsky, 1935/1978, p. 40 and Engeström, 1983, p. 94)*

Orientation towards an object is mediated by tools such as imaginary or tangible models about the object. Signs and marks (as symbols) are types of those tangible tools, as are also the proper material tools, such as graphics and other artefacts.

Furthermore, orientation is connected to the subject. Active and conscious subjects aim at being aware of the object, and at finding out about what they are doing and why. (See Figure 7.) Planning how to proceed in the learning process is meaningful only after this. Too often the major aim in teaching and learning is nothing but the process as such.



*Figure 7. The subject and orientation*

In the beginning of a learning process the object is usually not very clear, so the questions "what" and "why" are needed repeatedly. After having identified the object and sharpened the idea of how to proceed to it, one also needs to stick to this orientation.

In sum, one can say that in deliberate orientation:

- (1) The subject is active and conscious.
- (2) The subject is oriented (directed) to the object.
- (3) The subject is oriented (directed) to the object with the help of tools (mediation).
- (4) A tool is, for example, a model of the object.

Basically it is a question of world view whether orientation is important. If you want to manage the activities you are involved in, you should know what they are all about. If this is of no interest to you, orientation is not crucial either. Some people want to know their route as well as they are able. Some people value wandering around, with the route and the goal not being important. In vocational education - the empirical area of this thesis - the importance of being aware is explicit. In working life you need to know what you are doing.

In definitions and figures (e.g., Figures 6 and 7) orientation may look simple, but a more thorough examination of the theories about it reveals a complex and wide phenomenon. It might be that orientation, in the end, is as demanding to manage as is the concept and the phenomenon of activity.

What is orientation then in the account of practices of instruction? How can one find the object of orientation? How can one decide on a direction in teaching and learning? Who is the one to find and describe the route? Who chooses the direction? - In order to approach the area of orientation in more detail, two focusses will be discussed in this chapter. First some theories are presented that underpin the interpretation of orientation in this thesis. These theories originate from Gal'perin, Davydov and Engeström. The theories will raise questions about practices of orientation, thus providing the second focus. The questions will be attached as notes to presentations of the theories. Also the concept of model, and modelling, will be considered in this chapter, because it is closely bound to the concept of orientation basis.

#### 4.1 GAL'PERIN AND ORIENTATION

Piotr Yakovlevich Gal'perin is probably the best-known developer of the concept of orientation in modern psychology<sup>1</sup>. The concept comes from him, although it has been influenced by Pavlov (Haenen, 1996, pp. 104, 111 and 125). Gal'perin is perhaps even more famous for his idea of systematic formation of mental (intellectual) actions, known also as step-by-step formation of skills and concepts or as stage-by-stage thinking in learning. (There are different translations for these concepts from Russian to English: e.g., Gal'perin, 1992; Haenen, 1996; Kozulin, 1986, p. 279; van der Veer & Valsiner, 1991, pp. 238-239.) Based on this idea of systematic formation, Gal'perin has contributed to practices of teaching and learning by giving detailed advice about how to construct a process of instruction. Rather than dealing further with the idea of systematic formation of concepts, this thesis will concentrate on Gal'perin's contribution to orientation.

##### Orientation within human actions

When human beings orientate, they investigate a new (problem) situation and try to sketch a "route" to solve the problem. In other words, they try to make themselves aware of their objects and goals. People then decide how they can proceed to these, which means outlining and analysing the route. They also control and evaluate their progress and correct their actions by re-orienting over and over again (Gal'perin, 1979, pp. 66-67).

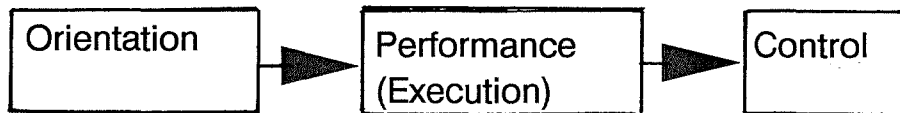
---

<sup>1</sup>

Gal'perin's first article in English appeared in 1957: *An experimental study in the formation of mental actions*, in Simon (1957, pp. 213-225). A detailed description of Galperin's theory and research in, e.g., Haenen (1996) and Talyzina (1981).

From the perspective of Leont'ev's three levels of activity, Gal'perin's theories are focussed on the level of actions, and on mental actions (on the level of images) in particular (e.g., Haenen, 1996, pp. 97-120).

Gal'perin suggests that all human actions consist of three stages, orientation, performance (execution) and control (Figure 8).



*Figure 8. Elements of action according to Gal'perin (Gal'perin, 1989c, p. 28; Talyzina, 1981, p. 62-63)*

In the course of maturing, in other words when an action is being learnt better and better, those three elements (orientation, execution and control) seem to merge into each other finally to become a single, well-adopted and finished action. In this merged stage it is difficult to distinguish the orienting part anymore: It has become "shorter", it has grown tightly together with the execution part. This shortening or abbreviation has its consequences: a finished action does not reveal much about the real structure of the action. For a proper examination the action must be "unfolded" again. Investigation of mental actions requires that they are being formed actively: "...the main method of investigating orienting activity is to study its formation or, as has been said, (...) its development." (Gal'perin, 1992, p. 57; see also 1979, p. 160)

Sometimes one may act just automatically without any deliberate (conscious) orientation, as we do when, for example, walking, breathing or driving the car. In these cases the orientation phase of an action seems to have diminished and become "invisible". Gal'perin (1979, pp. 86-87)

calls this passive or automatic orientation; organised human mechanisms (reflexes etc.) steer actions.

Active orientation emerges when no ready mechanisms are provided to solve new problems emerging in a situation. In fact, every change in a situation, even a slight one, causes a corresponding small and active change in an action. This leads to constant reorientation, indispensable for the carrying out of successful actions (ibid., pp. 86-87). Gal'perin underlines the role of orientation: "The orienting component is the guiding element, the quality of performance depends on it." (1989c, p. 28)

There is some orientation within every action, even in trial-and-error situations. We have some idea about our action in mind. This image serves as a basis for our orientation. It can be inadequate, though. People obviously do not always put their minds to having as correct an orientation as possible:

"It is well-known that people often do this [orientation] not in the best manner or completely incorrectly, and that most of their failures and genuine misfortunes stem from this."  
(Gal'perin, 1992, p. 56)

Gal'perin points out the significance of orientation. He argues that orientation is the core of mental activity, or orientation is the mental activity itself:

"Mental activity itself (...) is, in terms of general and basic life function, nothing other than orienting activity. In active, living beings, this activity becomes the dominant activity, because the most important and difficult behaviour is that involved in acquiring a correct orientation in circumstances requiring action and then properly orienting one's own actions." (ibid.)<sup>1</sup>

---

1

In this excerpt the vagueness of the activity-theoretical concepts and their translations becomes, once again, explicit. Galperin connects the concept of action with the concept of object which is not in accordance with the Leont'evian



Since orientation is the core of mental activity for Gal'perin, it is easy to understand why he also has the opinion that "the main task of psychology is to study aspects and components of orientation" (ibid.)

### **Orientation basis**

A human being's plans for a new situation are typically provisional at first. They are reductions or simplifications of the situation and of the action to be implemented. These images serve as bases for orientation. They can also be turned into tangible models, into various artefacts - which are orientation bases, too. Orientation is action (activity), and an orientation basis<sup>1</sup> is a tool or an instrument for orientation.

According to Gal'perin (Engeström, 1984, p. 64), an orientation basis is a subjective (mental or tangible) representation. It contains a human being's understanding (interpretation) about the contents of an action (activity), about tasks and anticipated problems (critical aspects), and also about the context or the circumstances to which all of these are bound. In instruction a tangible orientation basis, as a particular tool of teaching and learning, is created at the beginning of the learning process.

Orientation bases can be quite dissimilar in character. Their characteristics are vital for learning (Gal'perin, 1968, p. 260; 1989a, p. 49) and for learning a new action or concept in particular. The orientation bases may be more or less complete, more or less appropriate, and they may contain relevant or irrelevant information. They are being shaped systematically or randomly and with more or less understanding. The basic features of the orientation bases are as follows: (1) An orientation

---

vocabulary.

1

In some translations from Russian into English the concept of "orienting basis" may be found. This thesis will use the concept of "orientation basis".

basis can be specific (referring to the case in question only) or general (its principles work in a great number of cases). (2) An orientation basis can be incomplete (including only some part of the elements of the case) or complete (covering all the elements). (3) In instruction an orientation basis can be given to the students in a finished form, or the students may produce it on their own, either individually or jointly.

Gal'perin combines the characteristics into three main types of orientation bases (Gal'perin, 1968; 1969, pp. 251-252; 1989a, p. 49; see also Engeström, 1984, pp. 64-68 and Talyzina, 1981, pp. 88-90).

**Type 1 (Spontaneous):** An orientation basis is specific, incomplete and the students form it independently. It makes only a slow development in learning possible. Learning takes place through trial-and-error and a lot of mistakes are made. This type occurs, for example, when a teacher gives the learners merely an example of a finished correct answer without analysing the factors influencing the solution.

**Type 2 (Empirical):** An orientation basis is specific, complete and given outright. Precise algorithms or rules are typical of this type which will do in a specified situation or task only. The orientation basis contains all the information required and for successful action one only needs to follow it strictly. Learning takes place rapidly with few mistakes. Yet the action learnt in this way cannot be applied in new situations, because the orientation basis is specific. "Check-lists" given to new employees in workplaces to teach them their new job are a typical example of this type.

**Type 3:** An orientation basis is general and complete. Such a model or solution is suitable for a number of different actions. A general analysis is either provided in a finished form or the learners produce it by themselves. Instruction using this third type is more time-consuming than the other types, but this kind of orientation basis helps the subject in

independent analysis of any phenomena in the given area, and in correct execution of new tasks; the subject learns general methods of analysis.

### **A tangible orientation basis and a mental one**

Gal'perin makes a distinction between a "SCOBA" and an "OBA".

SCOBA is an abbreviation referring to a concrete (tangible) Schema about an Orientation Basis of Action, whereas an OBA (Orientation Basis of Action) is the corresponding reflection in one's mind. A SCOBA may be found and made in several ways, but basically a learner either discovers it independently or receives it in a "finished" form (Gal'perin, 1989b, pp. 80-82). The former needs to take place - as he adds - "of course, under the guidance of the teacher" (p. 80).

These two forms of orientation basis should not be mixed with each other. A SCOBA as a tangible model stays as it is until changed, whereas an OBA is an image, and thus varying and moving in one's mind: The OBA model is constantly being differentiated and generalised, it undergoes abbreviation and modification. The orientation part of an action is connected with the execution part and when orientation (the OBA) changes, the execution will vary respectively. This affects the entire quality of an action (ibid., p. 81).

Gal'perin emphasises images as representations of orientation bases. For Gal'perin, the images are the ultimate psychological reality (1992, p. 54): "The objective content of an action exists as a psychological reality only as a reflection, as the content of an image. Hence, an image with such-and-such a content is a psychological reality."

### **Systematic formation of concepts**

Gal'perin presented a theory of systematic formation of mental actions in 1952 (Haenen, 1989, p. 4). The following review of its main arguments originates mainly from Haenen's (1996, pp. 115-146)) extensive research on Gal'perin's life and work.

The prerequisites (or basic conditions) required for a systematic formation of concepts are (Haenen, 1996, pp. 122-130): (1) the learning motive, (2) the orientation basis, (3) the properties of an action (degree of appropriation, generalisation, abbreviation, and mastery) and (4) the stepwise procedure that aims at the formation of a full-fledged mental action.

The stepwise procedure consists of six stages that, step by step, lead to formation of mental actions:

- (1) In the stage of motivation an action is preliminarily introduced to the learners and the learning motive is mobilised.
- (2) In the stage of orientation an orientation basis of the action is constructed.
- (3) In the material(ised) stage the action is mastered and material or materialised objects are used.
- (4) In the stage of overt speech the action is mastered at the level that means "a soundless utterance of the action entirely in the mind" (Gal'perin, 1969, p. 263).
- (5) In the stage of covert speech the action is mastered at the level of speaking to oneself.
- (6) In the mental stage the action is transferred to the mental level, thus becoming "inner speech". (See also Talyzina, 1981, p. 109-114)

## Research results

Several works on the Gal'perinian method report good results in learning: for example, reports on the use of orientation bases of the third type in instruction. Gal'perin (1968, pp. 262-271; 1989c) reports experiments implemented by several colleagues of his in the 1950s and the 1960s. They dealt with writing, studying the grammar of the Russian language (as a mother tongue), and with initial mathematical concepts. According to the results, the use of the third-type of orientation bases might lead to a thorough re-evaluation of text-books and curricula.

Pantina, who worked with Gal'perin, conducted an experiment (1957, reported by Talyzina, 1981, pp. 91-94) dealing with various types of orientation bases. Children were to learn to write letters (alphabets). To one group of children a model of a letter (it was the letter "u") was shown that they were to imitate. In the execution, the experimenter pointed out the errors and explained how they should be corrected. 174 repetitions were needed to have the first letter written correctly. To write another, new letter, the children still needed 163 repetitions. (Specific, incomplete orientation basis)

With another group of children the points were explained where the outline of a particular letter makes a curve. 22 repetitions were needed until the first letter was written correctly. With the second letter, the points shown were no longer relevant, and the children were not able to recognise them. 17 repetitions were needed for the second letter. (Specific, complete orientation basis)

Instruction with the help of the third-type orientation basis took place differently. The experimenter explained the children principles of identifying letters by the curves and dots in them. This was shown to the children with a particular letter first, and after that they were shown how to apply the principle with several other letters. 14 repetitions were

needed to produce the first letter correctly, and 8 for the second letter. After the seventh letter the children were able to write any letter correctly after one trial only. (General, complete orientation basis)

A more detailed list includes at least the following research projects (cited in Haenen, 1996, pp. 154-161); see also Gal'perin, 1968 and Talyzina, 1981, pp. 91-97): linguistic concepts (Gal'perin & Dubrovina, 1957); elementary arithmetics (Gal'perin & Georgiev, 1969); elementary grammar of Russian language (Zhdan, 1968; Aidarova, 1968); geometrical concepts (Gal'perin & Talyzina, 1957); polytechnical education (Reshotova & Kaloshina, 1968); grammar (Aidarova, 1968); chess (Talyzina & Iakovlev, 1968); concept formation with 'Vygotskian blocks' (Teplen'kaia, 1968); physics (Obuchova, 1968), and geometry (Butkin, 1968).

Since the 1970s experimental research exists also in Germany and in the Netherlands: teaching languages (Keseling & al., 1976); sports and physical education (Weinberg & al., 1981); various other topics (Mann, 1981; Wilhelmer, 1979; Wittmann, 1981; van Parreren, 1977). (All are cited in Engeström, 1984, p. 74). Bock (1989) in Germany has dealt with the possibilities of using Gal'perin's theory of stepwise formation of mental acts in teaching foreign languages.

Outside the Gal'perin-based research area there is interesting research conducted by Rogalski (1993, 1995). She discusses the designing of operative tools for open dynamic environment management, her research being about mastery of large forest fires in France. Rogalski offers a good example of a genuine use of models (and modelling). Her ideas about plans and charts as common tools (or orientation bases) in managing the fire fit well to the idea of Gal'perinian orientation, although the level in her projects is decidedly larger than the one of action only: she studies activity systems. Furthermore, her studies involve a striking

aspect: the activity system of fire. This activity system is not social or societal, but derives from nature.

### **Notes on Gal'perin's theories**

Gal'perin's contribution to the concept of orientation in instruction is fundamental. He has defined the concept itself and justified its importance not only in education, but in psychology in general. He has developed the concept of orientation basis. His emphasis on mental orientation illuminates the deep meaning of orientation.

Gal'perin's definition of the successful "third-type" orientation basis, the general and complete one, gives opportunities for expansion and modification of his postulates to fit the changing circumstances of our time. With this type, Gal'perin (1989b, pp. 80-82) suggests the possibility that the learners would make the orientation bases by themselves. Yet he points out that this needs to take place under the guidance of the teacher. One can ask what this guidance of the teacher means and suggest several possibilities: The learner will go the path of the teacher first, and will learn the unknown only after that? Or, the learner takes an independent path, asking for the teacher's assistance only if needed? Or, the teacher and the students start together a journey towards the unknown?

It looks as if SCOBAs, according to Gal'perin, are meant to be given and taught by the teacher. Haenen (1996, pp. 133-136) seems to share the same point of view. At least for teaching young children Gal'perin presents precise statements about how to proceed:

"[...SCOBAs...] a complete set of conditions for ensuring the correct execution of a new action (...) such a scheme is to reveal to the child the objective structure of the material and the action (...) at the very beginning, the purpose of the end product of the action is explained (...) individual parts of the product are pointed out (...) all this has to be stated and shown (...) also represented in an explicit, external, and

stable form, using a written record on a card (which we call the orientation card) ... " (Gal'perin, 1982, p.527).

I would like to present another possibility. The extent of a SCOBAs's completedness needs to be left open. First, I argue, there is a very small number of perfect SCOBAs to be presented to the students, at least this is the case in vocational business education - and perhaps this is the case in most areas of modern education. The phenomena of working life and society in general are often too complex and turbulent to be fitted into finished SCOBAs be given to the students.

Secondly, one can ask whether the orientation bases should be presented to the students in the first place. Should they not be encouraged to make them on their own, even though this may take time (see, e.g., Engeström, 1983, pp. 219-220)?

Here also the importance of OBAs is visible: dealing individually with a phenomenon in one's mind contributes to conscious thinking, something that is highly valued in this everchanging world. Even Gal'perin himself underlined the image-nature of orientation basis. Yet one can ask how meaningful and adequate the OBAs (alone) are in collaborative learning. Orientation bases in one's head are not enough when something is being carried out collectively. The question is, how are the SCOBAs and the OBAs to be fitted together in practice of instruction? How can, on the one hand, the SCOBAs be considered, and how, on the other hand, can they be reconciled with the OBAs in one's mind? Both are necessary.

Gal'perin's research projects, as for example the project by Pantina on writing letters (alphabets), were focussing on the level of actions, even of operations only. The level of activity, as articulated by Leont'ev, is not highlighted within Gal'perin's work (see, e.g., Arieviditch & van der Veer, 1995). The motives or objects of larger activities behind the goals of actions are not considered deliberately. When dealing on the level of action only, the larger framework or context to which the action belongs



is easily omitted. This creates tensions to study Gal'perin's ideas seen from the level of activity. Quite obviously, most of the Gal'perin's principles can be applied on the activity level, too.

The stepwise procedure (the systematic formation of the concepts) provides a helpful framework for instruction, although it involves also unclear points. For example, motivation would need more clarification, since it seems to be quite thinly theorised by Gal'perin himself (Engeström, 1984, p. 80; Haenen, 1996, p. 124). The presentation of the systematic formation of concepts by Gal'perin involves a sequence of learning that has solid connections to the themes of the following paragraphs: to Davydov's theory about ascending from the abstract to the concrete and to Engeström's cycle of conscious learning.

I have suggested that in instruction a SCOPA can seldom be static, since there are not many complete orientations to be presented. New, flexible and changing SCOPA's are rather required during a learning process, according to emerging new features of the object, and often even with short notice. To this, Davydov's theory about learning theoretical constructions offers a contribution.

## 4.2 DAVYDOV'S THEORY

V.V. Davydov is another notable Russian who has been developing teaching and learning in the framework of activity theory. Two ideas by him are essential from the perspective of this thesis. The first one is the emphasis on teaching theoretical concepts to students. The second one, related to the first, is the idea of ascending from the abstract to the concrete in teaching and learning. In the latter it is crucial to find basic principles (the germ-cell or 'kernel') of a phenomenon and to model the phenomenon.

Davydov clearly distinguishes theoretical and empirical knowledge. Empirical knowledge is drawn from external observation of the object, whereas theoretical knowledge requires an analysis where the inner relations and the basic principles of a phenomenon are revealed (Davydov, 1982, p. 39). Learning activity is not any random learning event for Davydov. He argues that the task of education is to teach scientific or theoretical concepts to the students - conceived as opposed to everyday knowledge. Mastery of theoretical concepts influences considerably the learners' development: the world can be conceived with the help of theoretical tools. Davydov clearly conceives activity with a Leont'evian meaning. According to Davydov, production of various tools (material tools, signs, or symbol systems etc.) for mediation in human activities is the core of human work. In fact, the whole of human knowledge can be considered a collection of the tools of humankind (Engeström, 1984, p. 95).

### **Learning activity, "from the abstract to the concrete"**

An important contribution by Davydov to activity theory in teaching and learning is the sequence (or the model, or the concept, or the theory) of six learning actions that make learning activity according to the ideal described above, the learning of theoretical concepts. His general method

also explains the sequence of ascending from "the abstract to the concrete" in learning (Davydov, 1982, pp. 37-44; 1988b, pp. 29-34). It includes the following stages:

- 1            Transforming the situation and its conditions in order to find general principles (or relations) in the object (in the phenomenon) under study.
- 2            Modelling of the principles and the relationships that were identified. This can take place in a material, graphic or symbolic form.
- 3            Modifying the model in order to investigate its characteristics.
- 4            Constructing a series of practical problems or tasks to be solved with the help of this general principle or model.
- 5            Controlling the learning actions and/or the operations that have taken place.
- 6            Evaluating the general method that was used and the mastery of the models.

In the first point Davydov underlines purposeful modification of the situation; observation is not enough. Modification helps learners to see the phenomenon (situation) from several perspectives and to discover principles in it.

In modelling, Davydov (1982, p. 42) asks for "genuine modelling". In education, models are meant to contribute to acquiring theoretical knowledge and generalised methods of action. They thus cannot be just

any models, but models that express the general relationships in the system under study and help the learner to proceed.

The third point in the sequence underlines transformations of the model. The reduced forms of relationships are not self-evidently explicit in real situations. They need to be sought and found, which may occur over and over and in different versions.

Davydov argues that the efficiency of the general method is tested when solving concrete problems and when approaching them as particular variations of the original situation. In this phase application of the model is characteristic. The model helps also in evaluation. "Once oriented towards that general relationship, they [schoolchildren] will be able to apply the general mode of resolution that they have previously assimilated." (Davydov, 1988b, p. 32)

When the learners go through this structured series of actions, they proceed from the abstract to the concrete - from general principles to concrete issues. The teacher is supposed to give assistance in this process:

"When moving toward the mastery of any academic subject, schoolchildren, with the teacher's help, analyze the content of the curricular material and identify the primary general relationship in it, at the same time making the discovery that this relationship is manifest in many other particular relationships found in the given material (ibid., p. 22)

Little by little this analysis reveals the inner (and essential) relationships of the object. These may finally make the so-called germ-cell ("kernel"), a reduced model that reveals the deepest general principles of the object (the phenomenon) in question. "The degree of correspondence between the "kernel" and the object, however, is revealed when the manifold particular manifestations of the object are deduced from that "kernel"." (ibid., pp. 22-23, 32)

The germ-cell involves essentials of a phenomenon. Revealing the essentials of an action or activity and putting them into a very general model requires quite proper analysis. The germ-cell also ought to show how these relationships have developed in the past. Furthermore, a germ-cell typically reveals inner contradictions of the phenomenon (Davydov, 1977, p. 296; Engeström, 1984, pp. 91-92).

The notions of the germ-cell may have their origin in Il'enkov's (1977, 1982) articulation: "The general, the germ-cell, is above all something genetically initial..." (Il'enkov cited by Engeström, Hakkarainen & Hedegaard, 1984, p. 127) This idea is illustrated by the image of a common ancestor, a father. The germ-cell is also durable and always present: "The general is not only the beginning of the system - it also continues to live as a part of the complex to which it has given birth." (ibid., p. 128) The general connection involves contradictions. There is interdependence and rivalry between the elements of this system. These tensions drive development (ibid.).

### **Notes on Davydov's theory**

In teaching and learning, Davydov's theory is demanding in many ways. First, activity as object is demanding. Secondly, modelling and transforming situations ask a lot from the instructional process. The models will perhaps only turn up after several modifications and rounds. High-level orientation requires discovery of a genetic germ-cell of action or activity. The process of discovery often takes a long time, it may take even years. The essentials are hard to identify, and when found, they may look very simple. This is, however, an illusion: A germ-cell is multivoiced (Engeström, 1994, personal communication), so it may be understood in several ways, and it may reveal itself in various situations.

For Davydov, modelling is a method of expanding theories, and he underlines tangible models in particular, whereas Gal'perin emphasises models in the mind. Orientation bases (models) seem to belong particularly to the first and second stage of the sequence of Davydov, but they are actually embedded in all the stages. They do not remain in their original form, but they are tested, modified, developed and concretised constantly. (Engeström, 1984, p. 106).

Perhaps discovery and modification could begin quite simply: "What is this action or activity all about?" This question might produce various problems concerning the phenomenon. The solving of those problems contributes to discerning the core of the phenomenon. In a way the process of search thus becomes an instrument to manage the problem situations and the phenomenon itself. Within this process the learner gets involved in an entire action or activity, the object is handled from various sides, and the unfolding germ-cell clarifies orientation towards the object.

The question "Who is the one in charge of modelling?" can be asked in connection with Davydov's theory as we did with Gal'perin's. Engeström (1984, p. 106) remarks that within an Davydovian method the models are not given ready-made to the students. Yet, once again, we can ask how modelling will be taking place. For example, how is mental space organised to allow the students to produce models (orientation bases) themselves? Davydov does not give definite advice:

"Naturally enough, the schoolchildren are at first unable independently to formulate learning tasks and perform the actions to resolve them. The teacher helps them in this for a while, but gradually the pupils themselves acquire the appropriate skills..." (Davydov, 1988b, p. 30)

Roegholt (1993, pp. 159-160) argues that Davydov presents "a structuralistic conception of knowledge, which implies a passive role for students". In more detail, her critique pinpoints issues in Davydov's work such as missing relations to students' everyday experiences and interests.

Furthermore Roegholt senses positivism and insufficient evaluation. She argues that Davydov's method leads to making rigid boundaries between the "right" and "wrong" meanings. She claims that evaluation is reduced only to the checking of the students' answers against the ideal model and that the student's independence of the teacher is limited. Students cannot negotiate the problems to be posed, because the curriculum needs to follow the logic of science.

It is difficult to agree with Roegholt's articulation, and I would like to present another interpretation. Davydov's method gives space - when needed - to several kinds of implementations. Even the question of theoretical concepts can be extended outside "genuine science". Also everyday life needs theorising, this will say we need to understand its deeper relations. An individual usually only recognises his or her own role in societal activity - sometimes maybe not even that. The activity rules the individual, but the individual has perhaps no chance to rule the activity. The idea of learning of theoretical concepts supports the ideal of conscious subjects in cultural and societal processes.

Whether there are "right" or "wrong" meanings depends on the nature of the subject matter (the contents) to be learnt. There is not much choice when learning to give a dose of a certain medicine to a patient, but learning a good method for instruction cannot involve absolute "rights" and "wrongs". Also evaluation, and the way the students are working, are determined by object and the context of the learning process. The Davydovian method does not dictate them - the method itself is, most probably, a multi-faced germ-cell as such. This will not claim that Davydov's theory is definite. The range of possible interpretations articulated above shows just the opposite.

Some other issues can be pointed out, too. The aspect of motivation within Davydov's theory seems even thinner than in that of Gal'perin (see, e.g., Miettinen, 1993, p. 258). In Engeström's theory of the cycle of

learning, motivation is being emphasised more strongly. This will be discussed in the next section.

There are convincing examples about how the Davydovian method has been used in teaching and learning. (See, e.g., Engeström, 1982 and 1994; Hedegaard, 1988; Miettinen, 1993).

One example from Davydov's empirical work deals with teaching the number notion to 7-year-old children (Davydov, 1982, pp. 40-41). The object, the number, is a complex notion, related to a wider notion of value. Value is characteristically related to equality and inequality. The children were first, even for a longer period, taught about value relations ( $a = b$ ;  $a > b$ ;  $a < b$ , etc.).

The children then had a task of equalising the volume of water in two large vessels of different shape, a task impossible to solve directly. They first discussed the situation with the teacher and came to solve the problem indirectly: A smaller vessel was taken to function as a volume measure (transformation of the situation). Using this measure, and the obtained number of measures (modelling the relations), the volume of water in one vessel could be made equal with that of another vessel. The children put sticks aside to keep in mind how many times the smaller vessel could be filled from the first (larger) vessel. Then the relation could be put into graphic and symbolic form:

$$\begin{array}{l} a \\ - = N \text{ ("a" in the ratio to "b" equals "N")} \\ b \end{array}$$

"a" is the initial value of water volume in the first vessel, "b" the value-measure and "N" the number fixing the multiple ratio of these two values.

Modification of the model took place when the children discovered that the given ratio may be expressed by any number. After that the children



were able to deduce large series of concrete practical problems with the help of this discovered method: changing objects of equalisation, number values, measures - they now had a general method. With the help of control and evaluation it was possible for children to learn to master the entire procedure.

Davydov tells (*ibid.*, p.44) about the success of the method of six learning actions in Russia, reporting, for example, on mathematics, physics, literature and the Russian language. He recognises, however, also a lot of difficulties and unsolved problems. (Lists of various examples and research based on Davydov's theory are to be found in Engeström, 1984, p. 98; 1991, pp. 249-250; Hedegaard, Hakkarainen & Engeström, 1984; Lompscher, 1982, pp. 47-54.)

Also Davydov's studies deal with the level of actions. He discusses large activities as objects, yet it is not easy to find clear empirical evidence on them in his own research projects in Russia. Miettinen's project (1993) in Finland (Section 2.3) is one (and perhaps the only one in the area of teaching and learning) extending in the area of activity. This creates further tensions - as became explicit also with Gal'perin's theory - to figure out how Davydovian ideas are to be put into practice with large activities as objects of learning.

### 4.3 ENGESTRÖM AND THE CYCLE OF CONSCIOUS LEARNING

Engeström (1981, p. 12; 1983, pp. 150-151 and 202; 1994, p. 35) develops the ideas of Gal'perin and Davydov further by presenting a theory of a conscious learning. His model for instruction, the cycle or spiral of conscious learning, is a powerful tool in the practice of teaching and learning. The model can be used in "traditional" classroom instruction, but it is particularly helpful when connecting thinking and practices of working life to learning, and when proceeding from single lessons towards larger learning units. In English (see, e.g., Engeström, 1994) it has also been called the cycle of investigative learning. This thesis underlines the role of active and conscious learners, and consequently prefers the expression "conscious learning". This is in accordance with the Finnish title of the theory (see, e.g., Miettinen, 1993, p. 125).

In addition to theories of Gal'perin and Davydov, the model of conscious learning considers the (Vygotskian) triadic model of activity (Figures 1 and 2, pp. 38-39). It includes also some cognitivist aspects and aspects of classic didactics (Miettinen, 1993, p. 221). The Vygotskian triangle points out the subject, the object, and the tool. Based on this structure Engeström elaborates a construction of learning activity consisting of six learning actions (Figure 9). For example, in the case of vocational education the object is a practice of working life (activity). The object becomes visible in various problems and tasks of the learning process. When handling the object the subject uses tools such as knowledge and models (orientation bases).

DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



*Figure 9. The cycle of conscious learning (based on Engeström, 1981, p. 12; 1983, pp. 150-151, 202; 1994, p. 22)*

Engeström's model shows the main points of learning activity (of a learning process), but it does not call for a rigid sequence of actions. The model is heuristic by nature. All the actions are going on simultaneously making up the learning activity, but at times one or the other of the actions is emphasised. The main ideas of each of the six learning actions are as follows (examples are drawn intentionally from business education):

Learner(s) (subject) first ought to become motivated by the object of learning. The object (the practice to be learnt) is, for example, to learn how to do business in the German marketplace. Motivation (the first learning action) is supposed to be awakened by the challenge the learners experience when discovering that their existing knowledge or skills are not enough for the object to be learned.

The students' next step is to direct themselves mentally to the object, to what is to be learnt. They are consciously orientating towards it. Orientation may take place with the help of models (orientation bases) that aim at forming a comprehension of the object. According to Gal'perin, mental models are the basic form of orientation bases, but in practice external models are required as well. External models may have various forms. In education they are typically graphic models (drawings, charts, pictures etc.), mathematical models, or even material artefacts. Modelling may reveal historicity and contradictions of the phenomenon in question. It is meant to sharpen orientation and be of help in discovering problems and their solutions. In an ideal case the orientation bases provide general models of explanation for solving essential problems.

In a learning process also internalisation and externalisation need to take place - "something goes into the student's head and something comes out". The tools of learning (knowledge, models) assist in analysis of the object and in solving corresponding tasks; the learners are interpreting new information and appropriating new internal models. In the phase of

externalisation the students implement - still directing themselves to the object, still orientating - what has been learnt. They are able to apply and enrich their models in new situations. The learners also need to evaluate and control their own performance in the learning process (the outcomes and the contents of learning). It is also important to evaluate the methods and other tools used in the process.

### **Notes on Engeström's theory**

In his theory of conscious learning, Engeström considers the (Leont'evian) level of activity, the practices of working life and society in general. He also brings the problematics of learning closer to teaching practice. The model gives hints for the teacher about how to conceive a learning process thus also serving as a basis for educational interventions.

Constructing knowledge on top of what the learner already knows and modelling, in some respects, are cognitivist features in Engeström's model. The learning cycle is often used on an individual level, which can be considered a cognitive feature, too. However, in later elaborations of the cycle (Miettinen 1993) there has been explicit effort to switch the focus to more of a social and societal level.

The importance of orientation, which Gal'perin considers the main feature of human mental activity, can be seen very clearly in Engeström's cycle (or spiral). The Gal'perinian concept of orientation basis in general and the concepts of SCOPA and OBA fit well into this theory as does also Gal'perin's theory about formation of mental activity. The idea of ascending from the abstract to the concrete by Davydov can be distinguished in the spiral, and his ideas about theoretical generalisation, modelling and search for a germ-cell as well. (Engeström's elaborations based on Davydov are presented in detail, e.g., in Engeström, 1983, pp. 150-151.)

Activity and actions, and the connection to the context (working life) are characteristics of activity theory in Engeström's model. The teacher's responsibility is visible in this kind of a learning process: he or she should create learning environments that reveal the needs and real objects of working life. The arrangements are a challenge in instruction:

"Instruction must go before learning, leading students into new, unknown territory. This implies an inevitable tension - the instructor knows at least some aspects and parts of the territory better than students. This tension is not to be evaded or hidden in the name of equality - it should be consciously exploited." (Engeström, 1994, p. 23)

Engeström's model has not been easy to appropriate in practice. The heuristic nature of the model has often been passed over, and the cycle has been conceived as a rigid pattern or as a piece of technical advice according to which a sequence of learning actions is being put into practice. The notion of a frozen pattern called MOSUAK<sup>1</sup> has been a serious problem to overcome also in the FBC Teacher Education. The cycle has even been understood as a prescription for a single lesson only rather than for a large learning unit. Furthermore, the teacher has often been conceived to be the one to take care of the learning actions rather than the students. Here the main point, learning, has been invalidated: It is a cycle of conscious *learning*, not of teaching.

---

1

This is student teachers' jargon, which refers to the cycle of learning - according to the Finnish initials of learning actions: motivation, orientation and so on.

#### 4.4 THE THEMATIC UNIT

In practical applications of the cycle of conscious learning it has proved meaningful to construct the learning processes of learning tasks or of just one large task that deal with large societal phenomena. The cycle is here underpinned by the concept of the Thematic Unit.<sup>1</sup> Thematic units are built in accordance with the cycle of conscious learning.

A thematic unit is the totality of a "big theme" that the learning cycle covers. Its main activity-theoretical developments come from Engeström (e.g., 1982, 1994) and Miettinen (e.g., 1993). A thematic unit focusses on a large theme in teaching and learning, and it is built around a key activity or action that has relevance in working life. A plan about a thematic unit is a tool of instruction. It aims at managing an entire activity and the large learning tasks involved. A thematic unit is often cross-curricular, thus combining several subjects.

In fact, two kinds of thematic units can be distinguished. The activity-type described above is the ideal in vocational business education. There is also another, more traditional, type of thematic unit that is built around (scientific) concepts, or the "knowledge". This type was the first phase of development in the history of thematic unit (Miettinen, 1985; 1993, pp. 124-126). It underlined cognitive elements and structures stronger than the activity-type. One should not make strict boundaries between these types. Engeström (1982, pp. 113-114; see also 1994, pp. 86-87) himself defined the thematic unit in its early phase in a way that, in fact, involves both of the types:

---

<sup>1</sup> Thematic unit, in Finnish "aihekokonaisuus". Also the concept of *curriculum unit or instructional unit* ("opetuskokonaisuus, opetuksellinen kokonaisuus") has been used lately.

- 1) It covers an independent and complete theme.
  - 2) The core of the theme (of the thematic unit) is an essential and novel theoretical insight, in other words a valuable principle or concept (a generalisation) in instruction.
  - 3) The contents of the thematic unit must be analysed and organised to combine theoretical understanding to practical applications.
  - 4) A thematic unit must be large enough to underpin complete learning (to cover a complete cycle of conscious learning).
- (Also orientation bases are being constructed for these units.)

In vocational education the tendency is towards learning of activity rather than towards learning of concepts. "Real" qualifications and understanding required in working life are particularly essential. This has prompted the concept of the thematic unit to move and to expand.

Practical developments towards an activity-based thematic unit were analysed in Miettinen's (1993) extensive project within the FBC Teacher Education. Major intertwined questions of the project were whether changes in society and working life can be considered in planning and implementing learning activity, and whether instruction, in this process, could get rid of focussing on lesson, textbook and teacher only. The concept of thematic unit in accordance with the cycle of conscious learning were decisive developmental tools of the project. The thematic unit was defined by the following three factors at the beginning of the project (*ibid.*, p. 126):

- 1) The basis for a thematic unit is a concept, an intellectual activity or a way of thinking which will be appropriated independently. For instruction, the contents of the unit will be defined in a form of a model, i.e., an orientation basis.
- 2) The thematic unit will be linked to the reality of working life with the help of characteristic real situations (phenomena) or practical problems, in which the concept, the intellectual activity or the way of thinking will be used.



3) Furthermore, a thematic unit is a unit of learning to be used in accordance with the cycle of conscious learning. It involves analysis and organisation of learning activity (or actions). Learning proceeds from modelling to acquiring the knowledge required, and further to training. It ends in managing a complex performance independently.

In the course of Miettinen's project, teaching and learning were moving towards cross-curricular solutions. Yet thematic units mostly remained within one curricular subject. At the end of the project it was obscure whether the thematic unit had become a solid permanent instrument at the FBC Teacher Education (Miettinen, 1993, pp. 234-238). The project meant, however, considerable innovations. Within the following years the ideas were, to some extent, being established in the curriculum of the institute.

In the FBC Teacher Education the student teachers are instructed in how to plan and implement thematic units in accordance with the cycle of conscious learning. At the FBC we point out the importance of figuring out the core idea (germ-cell) and other principles of the phenomenon under study. Here we deal with orientation. Modelling (making orientation bases) is a way of grasping a phenomenon.

### **The ideal thematic unit**

At the FBC, the framework for planning an ideal thematic unit currently comes from two main sources (Peisa, 1994) (Figure 10). On the one hand there is a learning process running which is underpinned by the conscious learning cycle - a collection of theoretical tools that give guidelines for the planning and implementation of the unit. On the other hand the framework comes from societal life, from the context: qualifications required in working life are investigated.

DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



*Figure 10. The ideal thematic unit (Peisa, 1994)*

Finding a good thematic unit means finding a relevant object. In an ideal case the learners themselves are looking for challenging activities of modern working life, and they are studying problems of these objects in order to reveal the required qualifications. The process of study itself may aid them in learning to manage those requirements. Identification of ideas for meaningful thematic units is a demanding task in practice. One key might be looking for activities under change, because these are critical and crucial to explore. (Examples of thematic units in business education are presented in Appendix 2.)

#### 4.5 MODELS AND MODELLING

In this text orientation basis has so far been presented as a kind of a model. This has been based on the presupposition that in orientation we do modelling and transform models. Nevertheless, the concept of model is problematic because of various understandings and taxonomies attached to it. We encounter concepts such as mental models, models in the mind, graphic models, schemas, schemes, cognitive structures, advance organisers, stereotypes and so on. Both models in the mind as well as external (tangible) models are necessary in activity-theoretical orientation in teaching and learning.

There are several definitions about models in the mind, for example:

- Mental models are *internal constructions and/or representations of some aspect of the external world*. They serve the purpose of guiding inferences and making predictions (modified on the basis of Craik, cited by Rogers, 1992, p. 2).
- The mental model is the set of possible *representations of the available information* (Johnson-Laird cited in Leiser, 1992, p. 268) or a kind of *internalised flow chart* (Leiser, 1992). Payne implies (1992, p. 109) this by articulating that "the idea is fairly clear: thinking involves the creation and internalization of simplified models of reality."
- Mental models are the *images, assumptions, and stories which we carry in our minds* of ourselves, other people, institutions, and every aspect of the world. Like a pane of glass framing and subtly distorting our vision, mental models determine what we see (Senge, 1994, p. 235).

- A schema implies a *mental structure* that is capable of *generalisation*. It is similar to what other psychologists mean by the word *concept*, but [in Piaget's model], the schema is tied to mental operations and cognitive structures (Reilly & Lewis, 1991, p. 66).
- A scheme means an organised *pattern of behaviour*, it involves observable evidence of mental operations or thought put into action (Reilly & Lewis, 1991, p. 64).
- Cognitive structure is the sum total of an individual's knowledge in an area and how that *knowledge is organised* within it (Reilly & Lewis, 1991, p. 142).

Gentner and Stevens (1983, pp. 2-3) suggest that research on mental models has two lines. The first one involves cognitive psychology and, as related disciplines, linguistics, anthropology and philosophy. It investigates what goes on in the human mind. The second line does work on artificial intelligence. The ideal researcher of mental models would combine all of these.

Only a lack of imagination sets a limit to the different representations of external models. The variety contains, for example, graphic models<sup>1</sup> such as illustrations, pictures, texts, diagrams and theoretical schemes. In fact, any physical object can be a model. Films and videos, computer-based interactive models, and virtual worlds are examples of external models as well particular tangible models of the structure of an atom or of a machine. Signs and words, language and metaphors represent symbolic (abstract and often generalised) forms of external models. Models also

---

<sup>1</sup> McTighe (1992, pp. 183-188) presents a variety of forms of graphic models, for example, webs, sequence chains, attribute wheels. Other examples of using graphic modelling are mind mapping (Buzan, 1980) and concept mapping and Vee heuristics (Novak & Gowin, 1984).

exist as performance routines. (See, e.g., Engeström, 1994, pp. 24-25.) The different forms have their special tasks suitable for different purposes. Variety, however, should not be turning into an end in itself (Engeström, 1984, p. 115). Modelling has often been a tool of instruction outside the particular activity-theoretical implementations. (Of systems models and modelling as a dedicated method of learning in "Jeans Fabrik", in a simulated practice enterprise, see Achtenhagen & John, 1992.)

### **The concept of model in this thesis**

There is no agreed interpretation of models, particularly not of mental models, so I will stay with a simple definition. The simplicity attempts to avoid the strictness which is possibly embedded in many definitions. In this thesis models will be understood as patterns of thoughts and actions (Engeström, 1994, p. 126). This involves both the mental models and the tangible models. A justification for this plain definition comes from Wartofsky (1979):

"By contrast with nonhuman animals, human beings create the means of their own cognition (...) The cognitive artifacts we create are models: representations to ourselves of what we do, of what we want, and of what we hope for. The model is not, therefore, simply a reflection or a copy of some state of affairs, but beyond this, a putative mode of action, a representation of prospective practice, or of acquired modes of action" (p. XV).

"*Anything* (in the strongest and most unqualified sense of 'anything') can be a representation of anything else (...) It is *we* who constitute something as representation of something else. (...) a representation is whatever is taken to be a representation." (ibid., p. XX)

In this thesis models will also be understood as representations that are possibly transforming. Furthermore, models are not necessarily exclusively individual, they can also be shared cultural patterns (Engeström, 1994, p. 126). Furthermore, a model might also imply what is not included: "... [a model] prescribes both what must be done and, at

the same time, what cannot be done, i.e., a model is a dual positive-negative formation. Usually its 'negative' side is disregarded, even though it is a necessary aspect of it." (Elkonin, 1993, p. 34)

### **Types of graphic orientation bases**

Engeström (1984, pp. 122-124; 1994, pp. 62-66) has classified five types of graphic orientation bases in a form of a pyramid (Figure 11). Their characteristics and the main questions each type is answering are attached to the figure. The types proceed from the least demanding (prototype) to the most demanding (germ-cell) one. Yet every type is useful, since different types are needed in different situations.

DIAGRAM REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



*Figure 11. Types of graphic orientation bases (Engeström 1984; 1994, p. 139)*

In the bottom part there is the prototype. Prototypes are usually spontaneous and based on everyday cognition, possibly pictures, stories and metaphors. They do not contain explicit specifications of the most essential features of a phenomenon (Engeström, 1994, p. 63). More elaborate representations can then be built on them. Cases (examples of companies, for example) in instruction, telling "a story", might be regarded as prototypes.

The next type is the advance organiser that typically includes classifications and lists. It organises central aspects of what needs to be learnt and "puts a piece in a right place in the puzzle". Advance organisers help in checking and remembering, but the connection with the living and complex reality is missing. This kind of orientation basis is typical of the beginning of a learning process, less so later in the process. (Engeström, 1984, p. 35). Figure 11 itself represents an advance organiser.

Advance organisers are followed by more systemic models such as algorithms or flow charts and other diagrams. They reveal inner relations, particularly sequences or steps in a phenomenon. A simple example of an algorithm is presented in Figure 8 (p. 63). Models of this type are helpful when controlling one's progress in a performance, but they are one-dimensional.

The fourth type, the genuine systems models, demonstrate parallel and mutual relationships in a phenomenon. They are multi-dimensional. (Examples in Appendix 16.)

At the top of Figure 11 there is the germ-cell type, the Davydovian ideal. It reveals the most crucial general principles of a phenomenon and enables a wide variety of explanations for it. As it contains the plain basic idea only, complementary models are mostly required. Furthermore,

a systems model can always be deduced from a genuine germ-cell (Engeström, 1984, p. 120). Figure 2, the triangle of activity, is an example of a germ-cell.

### **Remarks on models and orientation bases**

Models often represent structures of knowledge, thus not revealing contextual connections which would be of particular interest in activity theory. In instruction the models typically seem to be advance organisers: classifications and lists of facts (Miettinen, 1993, p. 214). When dealing with large processes and procedures these are not adequate, because they do not imply the complexity of the phenomena. Systems models indicate relations and interaction in a dynamic way.

One problem of teaching and learning seems to be the fact that orientation bases are used only in the beginning of instructional processes (Haavisto, 1990, p. 85, Miettinen, 1993, p. 150). They are not developed further in the course of a learning process in the transformative way that Davydov suggests. Another problem deals with the question of who develops the models. According to the ideal of an active and conscious learner, it is not adequate to make or give a "correct" orientation basis first, to proceed in the learning process then, and to finally confirm that learners have internalised the "correct" orientation basis. The students should rather learn to develop orientation bases actively and consciously (Engeström, 1983, pp. 219-220). This is one more challenge for teachers.

### **Models and situated learning**

Situated learning conceives learning as a situated phenomenon, as an integral part of social practice (Lave & Wenger, 1991, pp. 31, 35). In particular, Lave and Wenger characterise learning as *legitimate peripheral participation (LPP)*, as novices' participation in the practice of experts. They exemplify the concept by studies of apprenticeship where learners



were legitimate peripheral participants in practices: midwives in Mexico, Vai and Gola tailors in Liberia, U.S. navy quartermasters, butchers in U.S. supermarkets, and "nondrinking alcoholics" in Alcoholics Anonymous.

Situated learning criticises traditional cognitive theory for being "distanced from experience" and separating "the learning mind from the world" (Lave, 1993, p. 7). Rather than gaining a body of abstract knowledge to be transported, reapplied and replicated in later contexts, situated learning emphasises the skill to perform by engaging in the process of participation (Hanks, 1991, p. 12; Lave & Wenger, 1991, p. 100).

Fixed structures do not work in developing practices and experiences are difficult, probably impossible, to be put into a model of permanent nature. Meaning, understanding and learning are all defined relative to actional contexts, not to self-contained structures. Thus there is a shift from invariant structures to ones that are less rigid and more deeply adaptive. (Hanks, 1991, p. 13; Lave & Wenger, 1991, p. 17).

From this, an interesting question arises. What is the relationship between models and situated learning? If we conceive of models in the broad meaning presented by Wartofsky (p. 97), one may argue that some kind of models also exist in situated learning. For example, the midwives in Mexico supported learning by telling stories of difficult cases:

"What happens is that as difficulties of one kind or another develop, *stories of similar cases are offered up* by the attendants [at a birth], all of whom, it should be remembered, are experts, having themselves given birth. In the ways in which *these stories are treated, elaborated, ignored, taken up, characterized as typical* and so on, the collaborative work of deciding on the present case is done.... These stories, then, are *packages of situated knowledge*.... To acquire a store of appropriate stories and, even more importantly, to know what are appropriate occasions for telling them, is then part of what it means to become a

midwife." (Jordan, 1989, p. 935, cited in Lave & Wenger, 1991, p. 108; emphasis by the author, LT)

These stories make some patterns (models) for the practices (activity and knowledge). The novices may learn by participating in a common activity, together with more experienced persons. The patterns will then (tacitly) be modified when novices are discovering different aspects of their work. This reminds me of Davydovian modelling, yet conceived in a liberal way. Lave and Wenger themselves take a middle course perspective as to knowledge and activity structures and articulate constant interaction of understanding and experience:

"Further, given a relational understanding of person, world, and activity, participation, at the core of our theory of learning, can be neither fully internalized as knowledge structures nor fully externalized as instrumental artifacts or overarching activity structures. (...) understanding and experience are in constant interaction - indeed, are mutually constitutive". (Lave & Wenger, 1991, pp. 51-52)

These views are not in contradiction with activity theory. Only the emphases differ. Activity theory focusses on the object (phenomenon), aiming at figuring out its meaning and crucial features. Situated learning emphasises social participation as the key of learning a phenomenon. It does not underline models or structures. Structures, cognitive structures in particular, are not the main focus of models or patterns in activity-theoretical orientation either; nor do these models constitute the object of learning. The object of learning is "reality", real situations, preferably large societal activities.

Models and structures are only tools, and quite often almost invisible tools in getting a grasp of reality. We deal here with discerning - perhaps a very long process - the main and deepest idea of a phenomenon. Still, I fully agree with Lave and Wenger, and this has been also my personal concern, that learning, all the same, is largely located in interactive processes.

In Vygotsky's triangle ("subject-tool-object", Figure 2) the paradigm of legitimate peripheral participation seems to focus on the apice picturing the subject, whereas activity theory points out the object. However, the everchanging context constitutes a crucial area for both paradigms.

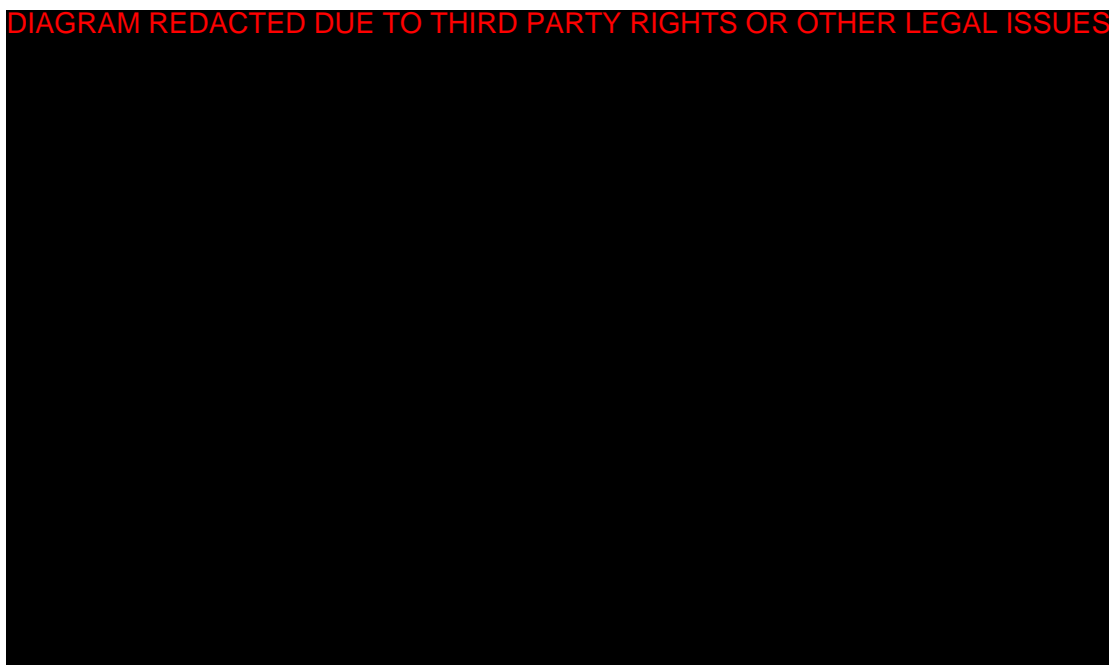
Situated learning and LPP underline the change from the perspective of participation and the subjects, whereas activity theory does it from the perspective of the phenomenon (context as object). As I have already argued before, activity theory has not discussed the role of learners, participants, in a particularly transparent manner. This is a point where these two theories could intersect in a mutually fruitful way.

Both of these paradigms take account of the conflictual nature of social practice. The continuous change in conditions of human practices is clearly underlined in both of them (Lave & Wenger, 1991, pp. 49, 120-121, 123) and so is the focus on participation rather than on the individual, on social practice rather than on cognitive processes.

#### 4.6 ORIENTATION AND THIS THESIS

Figure 12 shows the basic understanding of the idea of orientation in this thesis (and in the FBC Teacher Education) (Peisa, 1994). Some principles about how orientation is taught to the student teachers are presented in Appendix 3.

In orientation the basic idea of an object is first recognised - this is often just outlining. The core and the essentials of the real object of learning are being sought. Their identification is a process where the basic idea grows many-sided, becomes richer and stabilises. At the same time, and for the previous reason, the learner analyses, selects and structures knowledge about the object. Gradually this process produces a sharpened model for thinking and acting: It produces a more justified conception about the object - about activity, an activity system, or a performance. High-level instruction produces learning that develops and changes the situation and the goals of the beginning (Engeström, 1984, p. 114). In this learning process the learner proceeds - according to the idea of Davydov - from the abstract to the concrete.



*Figure 12. The idea of orientation (Peisa, 1994)*

The object cannot always be seen very clearly, but it can be clarified by investigation and re-investigation. Different aspects of its complexity are examined, which helps to understand the origin of the complexity. At the same time, continuous reorientation is going on. All this takes place in connection with other learning actions: Orientation is intertwined with other stages in learning.

Orientation bases (in the mind and tangibly) are constructed over and over again. Human beings, in a way, are making experiments with and within their thoughts (Peisa, 1996, personal communication). The models are images in the mind, externalised and put into tangible form, and internalised again. Various ways to approach the object are to be seen. As we learn more about the object, a better germ-cell emerges.

This is the ideal. In practice one asks a lot of questions, respecting vocational (adult) education in particular. It has remained fairly uncharted in research of orientation. Both the Gal'perinian and the Davydovian research deal with children's learning. The studies concern mainly elementary education in a classroom, a context that is no longer sufficient in our time, and particularly not in adult education. A restricted "school-going" area and classroom conditions are far from valid in present vocational education where a turbulent working life keeps producing new circumstances and new problems one after the other. All the same, the theories of Gal'perin and Davydov are quite valuable for vocational adult education, although detailed methodological advice is rare. More experience is needed in the implementation of these theories.

In Chapter 3 I was arguing for the concept of Students' Space from the active learner's point of view. In this thesis the accounts of the concept will be limited in the area of orientation. In orientation the space is essential for at least two purposes: (1) The students are to construe their own understanding about the object (activity) to be learnt, and to make (2) orientation basis by themselves (Engeström, 1983, pp. 219-220).

Questions about independence of the learners were raised earlier in connection with both Gal'perin's and Davydov's theories. The programme of the FBC Teacher Education encourages and favours learners' independent work. Developments within the FBC Teacher Education have revealed opportunities embedded in Davydov's method, although it has proved quite demanding (see, e.g., Miettinen, 1993). We have aimed at the creation of learning processes where learners are active in searching for general principles, where they deliberately model them, and where they are constantly alert for modifications to the models. It is still a major question whether this really takes place in the learning process, and if so, how. Investigation of the concept of Students' Space, in the framework described in Section 3.5, might also assist in illumination of these questions.

## **5 THE RESEARCH PROCESS**

### **5.1 THE MATURING RESEARCH PROBLEM**

#### **5.1.1 The start of the study**

In Autumn 1993 information on orientation was available from various sources: the extensive project of Miettinen (1993), the study of Haavisto (1990), the projects with two colleagues of the FBC (Torvinen et al., 1992/1994), and my recent small exploratory study. The basic question about the nature of orientation in instruction still was without an answer. As a practitioner of the field of education I wished to discover something that would contribute to teaching and learning.

At that time I was particularly involved with the issue of how to implement orientation successfully. The research task was first to trace success factors of orientation in instruction. I had not defined a determined focus for the study, but expected that the research process would clarify points where to concentrate later on. It seemed necessary to obtain rich data, which would guarantee material for almost any emerging new aspect of success factors.

The nature of the phenomenon of orientation, and of the research task, seemed to be for qualitative research. I had learnt about qualitative research as if it was painting a picture where new shades are added. This appealed to me. A study of this kind could be multi-layered and characterised by trust in the process, which would also allow working with people independently (e.g., Ely, Anzul, Friedman, Garner & McCormack Steinmetz, 1991, p. 102). The boundaries of the research could be drawn within the process only, according to evolution along the way. My ideals were consistent with the description by Miles and Huberman (1994, p. 17):

"Something is known conceptually about the phenomenon, but not enough to house a theory. The researcher has an idea of the parts of the phenomenon that are not well understood and knows where to look for these things - in which settings, among which actors. And the researcher usually has some initial ideas about how to gather the information. At the outset then, we usually have at least a rudimentary conceptual framework, a set of general research questions, some notions about sampling, and some initial data-gathering devices."

Since the research problem moved later in the process, a detailed justification and presentation of the qualitative basis of this study will take place only later in this chapter - in correspondence with the redefined research problem.

#### 5.1.2 The respondents

"Qualitative researchers usually work with small samples of people, nested in their context and studies in-depth (...) Samples tend to be purposive, rather than random." (Miles and Huberman 1994, p. 27)

The object of the research, the phenomenon of orientation, is complex. A structured questionnaire such as a survey would have hidden the many faces of the phenomenon. Intimate ways of collecting data seemed appropriate for this kind of process and interest. Only a few researchees would be required, but the contact with them ought to be intensive.

The study was to concentrate on teachers who are committed to their work. I wished to get concise and deep information. Committed teachers would probably not only consider my questions deliberately, but have also things to say. This kind of a sample might be effective: more information could be obtained from a small number of informants. I also planned to re-interview the researchees within a year. Meanwhile ideas and teaching practices might develop, thus assisting in identification of the success factors.



It seemed natural to study student teachers of the FBC Teacher Education. During the first months of our programme in the academic year 1993-1994 I had learnt to know quite a few of the students teachers in person, so there were even more possible respondents in my mind than was needed. The sample finally included seven beginning teachers. There were no "tests" of the commitment; I made the choices on the basis of my experience and intuition, though advised by a few colleagues. The idea of the research project was briefly explained to each of the informants in person (and alone), and so were the research interests of mine, which the researchees seemed to accept.

For the sake of variety, it seemed meaningful to study also teachers not acquainted with the contemporary business teacher education. (Later this choice proved to be also a contribution to validity, to triangulation.) (F)<sup>1</sup> was the first informant whom I met personally to discuss my research idea. This experienced teacher had completed her teacher education in the 1970s. Her attitude <sup>2</sup>was quite crucial for the start of the whole research, since I still was hesitant myself. I told her about the research idea, about the questions in my mind, and about the prospects that were still unclear. When being cautiously asked about her interest in participating in this kind of research project, she clearly expressed her willingness:

---

<sup>1</sup> F(iona) is a fake name, and so are also any other names of the informants in this research report. Mostly only the initial of the first name will be indicating the person in question. The student teacher respondents are A(nnie), B(ob), C(arl), D(ora), E(ric), G(eorg) and H(elen). The second experienced teacher is J(ean).

<sup>2</sup> After recognising F's interest in the research project, I had an idea of doing a special case of her, which would be studied as a major case (using narrative). For this reason, she was interviewed quite frequently in the first round of the study. When the research problem was being sharpened, and changed, I dropped this idea of a major case.

(1) "I have realised, or I feel that I don't have tools any more in my work, that I don't find new ones. And I am so impatient!

(...) When you called I saw an opportunity. This can wake me up, this gives me kind of impulses. I'd like to think of new solutions with the students where they make that orientation themselves ... I realise the problematic nature better now ... [and the interviewee starts presenting some ideas]." (F/23Nov93)

Another teacher, (J), was also contacted. She had completed her teacher education a couple of years before F. I knew these two "outside" teachers from my earlier experience as business teacher. They had also participated in some short courses of our institute. I was quite certain of their high commitment to teaching.

The nine informants never met each other as a group, and they were not even meant to know the identity of the other participants. The project might create situations where the informants would like to stay anonymous, so their privacy had to be protected from the first beginning.

A sample based on an elitistic choice can provide for a wider range of thoughts and actions, if the participants are different, which I took into consideration in particular. The teacher respondents of this study represent both genders, and they are of different age. They live in different parts of the country (location of the school, domicile). They vary in the duration of work experience outside school (e.g., business life) and in the length of their teacher experience. In most cases the participants have a Master's Degree (M.Sc.) in Economics. They mostly teach business subjects, but also language teaching is included in the sample. All are experienced in teaching students both in business colleges and polytechnics, and some teachers have also been teaching in other types of schools. The researchees have been dealing with adult groups, with classes of comprehensive school leavers (age 17 years or more), and with classes of secondary school leavers (age 19 years or more). Most of them

were teaching adult groups during the course of the study. Table 1 presents a summary of the characteristics of the teacher interviewees.

Gender	5 females, 4 males
Range of age	28 - 52 yrs
Domicile	4 persons from the Great Helsinki area 3 persons from elsewhere in the South of Finland 2 persons from the North of Finland
Education	7 persons: M.Sc. in Economics 2 persons: another background (M.Sc., M.A.)
Subjects taught (a teacher may teach several subjects)	Business administration: 5 persons Accounting: 3 persons Marketing: 5 persons Social Sciences: 2 persons Office Technics: 1 person Languages: 1 person
Nature of the workplace	All participants are teaching in business colleges and/or polytechnics
Business and working life experience (other but teaching)	2 persons: 1-2 yrs 3 persons: 3-7 yrs 2 persons: 8-15 yrs 2 persons: 16 yrs or more
Teacher experience	2 persons: appr. 2 yrs 4 persons: 3-4 yrs 1 person: 5-6 yrs 2 persons: 20 yrs or more
Teacher education	2 persons: in the 1970s 7 persons: in 1993-1994

*Table 1. A summary of the characteristics of the teacher interviewees (at the beginning of the research, Autumn 1993)*

The procedure above is closely bound to the ideas and risks that Johnson discusses about dimensional sampling:

"The researcher lays out the dimensions on which variability is sought, then takes representative, "well-informed" informants for each contrasting dimension. The aim is to find people who are more knowledgeable, reliable, and accurate in reporting events that are usual, frequent, or patterned. This strategy has also risks: Such informants may assume greater uniformity than actually exists." (Johnson 1990; requoted in Miles and Huberman, 1994, p. 29)

### **5.1.3 A change of the focus**

The study began with a focus on success factors of orientation processes. It seemed necessary to also ask questions about the practices of orientation, about associated problems in implementation, and about the nature and use of orientation bases. As fundamentals for that, the teachers' interpretations about the concepts of orientation, orientation basis, and activity theory were essential. The list of questions in the interviews of the first round of the study in 1993-1994 indicates the uncertainty of the researcher about how to approach the area of a successful orientation process: The list seemingly aims at making sure that any important issue would be covered. The questions were open-ended, thus being based on the assumption that the informants would talk at their own initiative. This might also open perspectives for new questions.

The following list contains the questions that were presented to every respondent.<sup>1</sup> Additional questions (Appendix 4) were posed according to the situation, thus not involving all interviewees:

- 1           How do you understand the concepts of
  - activity theory
  - orientation
  - orientation basis?
- 2           How have you implemented orientation with your students?
- 3           What is the meaning of orientation in teaching and learning?  
Or has it any meaning?
- 4           Can you present an example of an orientation basis?
- 5           What is the function of orientation bases?
- 6           (For the two more experienced teachers:) How and where  
have you become acquainted with the concept of orientation  
in instruction?
- 7           In instruction, is orientation a permanent tool for you?

---

<sup>1</sup>           The questions were based on the assumption that the respondents have an idea of orientation, and that they might also use orientation in instruction. The two experienced teachers, whose teacher education was from the 1970s, were not familiar with the basic concepts used in interview questions. The same questions were, however, posed to them, but often assisted by contributing questions, such as "How do you start a new course" or "How do you justify your pedagogical solutions in instruction?"

- 8           What is problematic when trying to get the students orientated?
- 9           What are the next steps you perhaps will take in order to become more acquainted with orientation?
- 10          How do you describe a successful orientation process? How do you (possibly) plan your work towards this goal?

In the interviews I tried to make sure that the respondents would answer every question of the list. As I listened to the tape recordings (see Methodology ahead) afterwards, the answers sometimes proved to be incomplete. Listening also raised further questions and aspects of reconsideration. Thus complementary interviews took place with almost every respondent towards the end (May 1994) of the first round. These new questions are listed in Appendix 5. They were posed to the respondents selectively - when necessary.

The emphasis of transformations had began to live in my mind. The new questions of the first round were more strongly directed towards challenges of practices of orientation and towards the teachers' experiences with the students. The informants were also asked about possible changes in their views concerning the concept of orientation, and whether they discuss orientation with their students or colleagues. Some questions from the basic first interview were repeated.

I also began doing interviews or having discussions with the students of the teacher respondents, aiming at finding out about how the students conceived their teachers' ideas of orientation.

By the end of the first round this study had reached beyond aspects of success factors of orientation only. The respondents presented interesting conceptions of orientation. Some of them communicated that this

research project made them think about pedagogical questions more thoroughly, or at least the project had given them an opportunity to do so.

(2) "I am happy to see that someone is interested in me. At the same time, I am truly thinking about these topics, but I do understand that I am not here to get advice from you. It is as if the handling of ideas goes unnoticed. This reminds me of how essential orientation is in teaching and learning." (F/2May94).

The interview questions and the research project as such must have influenced the respondents. Based on my interest and values, the questions carried hidden assumptions about a keen use of orientation in instruction and about the significance of active learners. It is, however, impossible to estimate the power of this (implicit) influence. The Hawthorne-effect was probably strongly present, too. The informants seemed to consider this study significant not only for me, but also for them, and even for business teacher education.

Most obviously the participants would go on thinking about the issues of the interviews. This would affect their practices. The research thus seemed to mean a slight intervention (though unintended from my part) into the work of the informants. I decided to repeat the basic questions of the first interviews in the second round (academic year 1994-1995) to observe the one and same phenomenon, orientation, better, and to discern possible transformations.

#### **5.1.4 Definition of the research problem**

The second round of the study began in a new crossroad. The research problem had to be refocussed and redefined. Investigation of success factors no longer appeared to be enough, and perhaps was not even relevant. The study would rather concentrate on examining how the informants conceive and appropriate the theoretical concept of orientation

in teaching and learning. Seven of the researchees were familiar with this concept, two of them were not. These two would perhaps see orientation in a different way from the others. The emphasis of the study would be on these seven teachers - who in the first round were student teachers and who by the time of the second round were normally in their schools now. The two other teachers, the very experienced ones, might add to aspects of appropriation thus also contributing to the validity of the study.

The focus of orientation in the study would not be the teachers' thinking only, but the corresponding practices as well. Two questions that had been inherent in the problem, though hidden in a way, now appeared relevant: (1) How do teachers conceive of orientation? 2) What is the role and meaning of orientation in instructional practice?

Signs of transformations in the first round made me more conscious of taking developmental aspects of orientation into consideration. For example, ideas about the extent of orientation (Excerpt 3) and about who makes orientation bases (Excerpt 4) seemed to be transforming:

(3) "First I actually thought that it is a kind of leading to the subject, [something like] "Ok, this is what we are going to do", but now I think it is more like a learning process itself, and I think there I have changed my ideas about it. But I think I needed the experience of how it works. [...but it is the whole learning process]." (D/26Apr94)

(4) "... the idea has changed. Earlier the orientation basis was always made by myself, but now I at least have some kind of goal that it could as well be made my students, or we [would make it] preferably together. Yes, indeed. - It would be also fine indeed if the students could work it out from a real-life phenomenon." (B/27Apr94)

The focus of the research now was shifted to distinguish development in the work of the respondents, or to discover indications about appropriation of some other kind. How would the concept of orientation develop in these teachers' thinking? What would be the respective



implications on their practices? What is the case of each teacher like? How does the process of a teacher start? How does it go on? What kind of problems and contradictions are emerging? What kind of stages are the transformations possibly including?

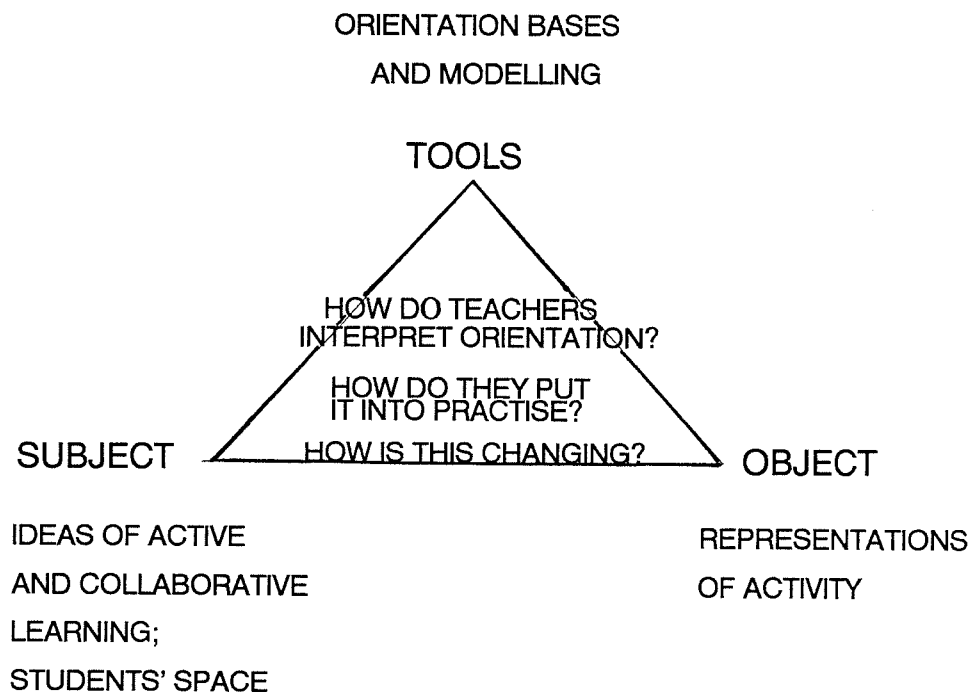
The study would be longitudinal - I decided on three rounds (academic years or schoolyears). The research problem was to be threefold:

- 1) How do teachers interpret the concept of orientation?
- 2) How do they put it into practice?
- 3) How do teachers appropriate the concept in the long run? How does this effect their practices? How do these conceptions and practices change - or do they?

The first round had also shown some other aspects, closely bound to problematic areas of theory presented in Chapters 3 and 4. (1) Cases of the individual teachers (not for studying individuals as such, but for understanding the phenomenon of orientation embedded in activity of teaching and learning) might reveal their notions of activity. (2) The study might show also arguments for activity of the students: What is the teachers' justification for "being active" and "learning by doing"? Perhaps they would have something to say that I could relate to my hazy concept of Students' Space - I somehow connected its idea to the students' activity. (3) Gal'perin considers mental orientation, Davydov discusses modifications and modelling in orientation. What are representations of modelling in the practices of the teachers? Are features by Gal'perin, Davydov and Engeström to be found in their thinking and practices? How does Engeström's learning cycle become explicit?

Accounts of activity versus action, active and collaborative learning and Students' Space, and mediation and modelling were added to the research agenda to be illuminated from the perspective of orientation. The

research problems would consider the apices of the triangle of activity (Figure 13), the project thus being theoretically driven (see, e.g., Silverman, 1993, p. 29) by some core areas of activity theory.



*Figure 13. The research problem within the Vygotskian triangle of activity*

### **Expectations**

Based on what had been taught at the FBC, I expected that orientation bases and modelling would be quite typical of the practices of the student teachers. Of the teachers' arguments for active students I had no particular idea beforehand, nor of the representations of activity and object. I also expected that the learning cycle of Engeström would be fairly extensively used and understood.

## 5.2 METHODOLOGY

"Each researcher is different; each has to work out methods that make him or her effective in understanding and portraying the case." (Stake, 1995, p. 57)

### 5.2.1 Qualitative research

The research question or problem dictates the methods of a study.

Qualitative methods typically seek to uncover what lies behind a phenomenon about which little is yet known. The nature of the research problem in this study naturally tends towards qualitative research.

Illuminating details are difficult to convey by statistical methods, or by other means of quantification (see, e.g., Rudestam and Newton, 1992, p. 31; Strauss and Corbin, 1990, pp. 17-19).

However, qualitative research may mean different things to different people. It provides a rich variety of approaches rather than an agreed-upon standard. (Bryman and Burgess, 1994, p. 13; Marshall and Rossman, 1989, p. 9; Rudestam and Newton, 1992, p. 32; Stake, 1995, p. 35; Strauss and Corbin, 1990, p. 18). According to Strauss and Corbin (*ibid.*, p. 20) there are three major components in qualitative research: (1) Data may come from various sources. Interviews and observations are common. (2) Different analytic procedures (for example, nonstatistical sampling, writing of memos, and diagramming of conceptual relationships) are used to arrive at findings or theories. (3) Reports are written and verbal.

According to some other writers (Stake, 1995, pp. 41-47; Miles and Huberman, 1994, pp. 5-6) qualitative studies are typically featured by aspects such as:

- 1) Research questions are oriented to cases or phenomena, with the emphasis on a holistic treatment of them. The study seeks to understand its object rather than how it differs from others.
- 2) The study aims at seeking patterns of unanticipated as well as of expected relationships.
- 3) Interpretation has a key role. Findings are rather "assertions" than "findings", thus implying the researcher's personal view.
- 4) Subjectivity needs not be eliminated. It is an essential element of understanding.
- 5) The study is sensitive, acknowledging the risks involved in research of human subjects. The research report ought to assist readers to make their own interpretations.
- 6) The study is empathic. For example, it attends to actor intentionality, its issues thus being subjective (emic) issues.
- 7) A good qualitative study includes validation.

### **Case study**

"It may be useful to try to select cases which are typical or representative of other cases, but a sample of one or a sample of just a few is unlikely to be a strong representation of others. Case study research is not sampling research. We do not study a case primarily to understand other cases. Our first obligation is to understand this one case." (Stake, 1995, p. 4)

According to Yin (1994, p. 13), "a case study investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". A controlled experiment cannot be a case study. A case study is a comprehensive research strategy. The nine teachers of this study are each cases. The cases concentrate on the phenomenon of orientation in real-life (school and other working life) contexts. This entire study will be based on these cases.

A case study focusses on the complexity and particularity of one single case, in pursuit of understanding it in a certain context. This understanding is accurate, but limited. Case studies can be featured much in the same way as qualitative research: Interpretation, organisation around issues, use of stories, risks of violation of privacy, needs for validation, and aims towards naturalistic generation are characteristic of it (Stake, 1995, pp. xi, xiii, 134)<sup>1</sup>.

For researchers, the time for and access to fieldwork are often quite limited. Stake (*ibid.*, p. 4) suggests that we "need to pick cases which are easy to get to and hospitable to our inquiry, perhaps for which a prospective informant can be identified and with actors (the people studied) willing to comment on certain draft materials".

### **5.2.2 Making choices between methods**

In qualitative research, data collection and analysis are intertwined. For the reasons of clarity, the respective methods will be presented separately ahead. Major methods for obtaining data in qualitative research are observation, analysis of texts and documents, interviews, and recording and transcribing. Data can be approached by methods of content analysis, discourse analysis, ethnography, ethnomethodology, grounded theory, phenomenography, action research, phenomenology, hermeneutics, case studies, life histories, and so on. Tesch (1990, pp. 21-29, 67-73) has classified the qualitative approaches into four categories, methods that focus on (1) characteristics of language, (2) discovery of regularities (identification of elements and connections, or patterns), (3) comprehension of the meaning of text or action (discovery of themes, and interpretation), and (4) reflection.

---

<sup>1</sup> Referring to Yin (1994), Stake remarks that the approach to case studies can be also more quantitative.

Methodology of a study is determined not only by the research problem, but also by the practical possibilities to implement the study. The methods ought to maximise what we can learn from research. We could ask which kind of data is likely to lead us to a better understanding about the problem of our study. At the same time we need to take into consideration what will be left out when neglecting the alternative selections of methods (Stake, 1995, pp. 4-6).

The research problem of this study demanded data from the thinking of teachers and, on the other hand, from their corresponding practices. Observation, complemented with video-recording, would have offered a good view into the practices. It is a typical method of approaching another culture (Silverman, p. 9). This method, however, demands an extensive stay in the field, thus being intensive and time-consuming. With the time resource available, I could not afford it. My daily work as teacher educator did not allow that kind of stays in the field. I was able to observe just a few lessons of the informants.

Furthermore, studies of practices were just one part of the research task. The other part, and the one to begin with first of all, was teachers' thinking. It was not to be observed. In-depth interviews seemed to be a good method. Interviews involve certain strengths. They are good for open-ended questions to small samples (Silverman, p. 9). The contact with the informants is face-to face, thus offering sensibility and flexibility in the process (e.g., immediate clarification, checking of nuances, even follow-up interviews). Large amounts of data can be obtained quickly. Interviewing facilitates cooperation from research subject and discovering complex interconnections in social relationships (Marshall and Rossman, 1989, pp. 102-104). "The interview is the main road to multiple realities" of cases (Stake, 1995, p. 64).

From the range presented by Tesch, methods that concentrate on analysing language (even emphasising linguistics) were too limited. The

research problem demanded becoming acquainted not only with the conceptual and intimate thinking of individuals, but also with their practices and working environments. For example, methods of analysing conversation might have been too fine-grained for my purposes.

Life histories alone might have shifted the emphasis too far from the instructional practices. They would have been also more subjective than was necessary. Though seen through individuals, the interest of the study lay, in the end, in the large phenomenon of orientation.

Ethnography or ethnomethodology would strongly consider the circumstances (practices, perhaps working environments) of the teachers, but they would not give first-hand information about the teachers' conceptions.

Strauss and Corbin (1990, p. 22) argue that some researchers believe that data should not be analysed, the aim being an honest account with little or no interpretation. Some qualitative researchers, on their part, are concerned with accurate descriptions. In this study it was necessary to reduce the data and to produce possible accurate descriptions only afterwards. This meant selection and interpretation - choices of the researcher.

For analysis, I did not find a single qualitative method that as such would have met with my ideals. After all, any method that works is fine, if only it produces clear, verifiable and credible meanings. There are no clear conventions for the researcher in a qualitative study, and most qualitative studies combine several methods (Marshall and Rossman, 1989, p. 101; Miles and Huberman, 1994, pp. 2-5; Silverman, 1993, pp. 8-9). In sum, the methods of this study seemingly had to be something that combines analysis of texts (speech), discovery of regularities and meaning, and reflection (Tesch, 1990).

### **5.2.3 The methods of the study**

In the beginning the research design had been quite loose, which is often characteristic of the start of a qualitative study (see, e.g., Rudestam and Newton, 1992, p. 37). Now the looseness could be partly taken advantage of, and partly it had been a true start that directed further choices.

In the beginning the research interest was focussed on success factors of the orientation processes. That phase was largely exploratory: searching for important aspects. A case study seemed a suitable research strategy then, and continued to do so after the research problem had matured. The basis of the study would be those nine cases of business teachers. The cases would be interpreted on an individual and a collective (all the cases together) level, the set thus being also a collective case (Stake, 1995, p. 3-4).

#### **Gathering of data**

Data were to be gathered during three rounds, each covering an academic year. The primary data from (1) in-depth and open-ended interviews of teachers would give information both about the teachers' thinking and about their practices in instruction. (2) Authentic materials - mainly documentary - concerning these practices would be collected. (3) Students of the teachers under study would be asked for information (interviews and questionnaires). The documentary materials would not only provide information about practices, but also triangulate the teacher interviews (thinking and practices). Student interviews would do the same for the part of the practices by focussing on conceptions the students have about such practices.

Observation of teaching practices would have been very helpful, but it could be manifested only on a small scale - for the reasons explained



earlier. This is a weakness in the data. The various documentary materials and the student interviews are meant to be a compensation for that. Supplemental techniques to obtain data from teachers could have been surveys and questionnaires. They did not appear meaningful. The phenomenon of orientation seemed too complex to be opened up by a few general questions, without the possibility of clarifications with the respondents face-to-face. Nevertheless, those methods were used for getting information from the students.

### **Analysing the data**

A combination of mainly two methods will be used in analysis. First, the idea of content analysis will be used when searching for certain topics and related areas in the data. Secondly, ideas of grounded theory (Glaser and Strauss, 1967) will be applied to systematise this search and to contribute to further analysis and possible theory-building.

As to categorising, the method of this study might look like Marton's (1981) phenomenographic method that has been used to analyse interview data in order to study conceptions. However, as Engeström (1986) pointed out in his critique, a risk with this approach is that it tends to freeze the conceptions and eliminate their inner contradictions. In the study at hand emphasis is placed on emerging problems and transformations that are bound both to the conceptions of the teachers and to the context of teaching and learning.

### **Content analysis**

There is no definite explanation of content analysis. It has been described even as a quantitative method where frequencies are counted (e.g., Marshall and Rossman, 1989, p. 100; Silverman 1993). According to Tesch (1990), a basic procedure of content analysis is to design categories among "recording units" and to sort the elements of data accordingly, the

frequency of which is then counted. Tesch discusses also the method of ethnographic content analysis where certain "categories" and "variables" guide the study initially, but where also new ones are allowed and expected to emerge. The emphasis is in recognising those categories, which is also the point in this study at hand. Categorising is also related to the first stages of the method of grounded theory.

### **Grounded theory**

"A grounded theory is one that is inductively derived from the study of the phenomenon. (...) One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge." (Strauss and Corbin, 1990, p. 23).

The grounded theory uses, in its suggested "pure" form (by Glaser and Strauss, 1967), a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon. Theory development is the main purpose of this method. Therefore the research question (or questions) needs to be an open and broad statement, identifying the phenomenon to be studied and giving flexibility and freedom to explore it in depth. The research question will be progressively narrowed and more focussed during the research process. The process involves coding, categorising, and multi-level interpretation. (Strauss, 1987, pp. 20-21; Strauss and Corbin, 1990, pp. 24, 37-38, 61). A detailed description about how the method was used in this study is presented in Section 5.4.

Bryman and Burgess (1994, pp. 4-6, 221) argue that grounded theory relatively seldom is applied genuinely. Though cited frequently, it is questionable whether it is employed by researchers in its entirety. The term rather denotes data analysis where theory has emerged from the data. Bryman and Burgess claim that one rarely finds evidence of close interweaving of data collection and analysis, bound to theory development, as is the original method suggested by Glaser and Strauss. The developers of grounded theory themselves point out that the canons

of this method should not be taken as utmost rigid rules. The most crucial point is to respect the particular procedures that are useful in investigations (Strauss and Corbin, 1990, p. 27). Perhaps the influence of grounded theory has been twofold: It has alerted the desirability of extracting concepts and theory out of data. It has also illuminated and articulated certain aspects in analysis of qualitative data: coding, different types of codes, and their role in concept creation (Bryman and Burgess, 1990, p. 221).

### **Features of the chosen combination**

In content analysis the researcher determines where the greatest emphasis lies after the data have been gathered. I wanted to identify characteristics within the text (interviews and documents) that could be attached to codes or categories. This might lead to reflexive analysis, and further to verification of theoretical relationships within the code areas and between them. The method would be a kind of interpretational analysis. It would be also an iterative enterprise.

In the loose framework typical of qualitative research I wished to have some systematisation. The analytic methods to be used would mainly involve sorting the data, coding, reflexion, and small generalisations (see, e.g., Miles and Huberman 1994, pp. 8-9). For these purposes a coding system had to be developed. It would be based on predefined - but also on those emerging - content categories. Counting frequencies would be almost unnecessary, yet marginally needed in order to state how fully the various issues would be covered by different respondents.

The methodological choices had their consequences. Later in the process I could recognise those characteristics of the research process that experienced researchers report about (Miles and Huberman, 1994, p. 2): I noticed the labor-intensiveness (and extensiveness over months and years) of data collection, frequent data overload, and the time demands of

processing, coding, and analysing the data. The latter proved to be the hardest and most tiresome phase of the entire research process.

The detailed procedures of data collection and analysis will now be described in detail in the following paragraphs. Ideas about confirming trustworthiness of the study will be discussed separately at the end of this methodology chapter. The issue will be rediscussed after the presentation of the results.

### **5.3 DATA COLLECTION**

#### **Nature of data**

The primary data were the semi-structured, open-ended in-depth interviews of nine (cases of) teachers. Documents concerning mainly practices of the teachers serve both as primary data and as support of triangulation. Interviews of the students of the teachers were mainly meant for triangulation. An inventory of all the data of this study is presented in Appendix 6. The entire data were also sorted out to make a paginated field book of about 1700 - 1800 pages with transcripts of the teacher interviews (700 pages, 150 000 words) included.

The study came to deal with the same sample as it began with. The process had already shown the dedication of the researchees. (All the nine teachers also stayed in the process until its end, although no such commitment was expected from them.) I felt confident that these respondents would be fine contributors when comprehending the nature of orientation. They were to be real sources of information, thus we can speak rather about informants than respondents.

The sample was small, thus not aiming at statistical significance, but at exploring conceptions in-depth. It was also purposive, as was discussed earlier in Sub-section 5.1.2, "The respondents". In a way, because of their dedication, the informants were "elites": Elite interviewing (Marshall & Rossman, 1989, p. 94) focusses on a particular type of respondent: influential, prominent and well-informed people of a community, who have expertise in the areas relevant to the research.

#### **Interviews of teachers**

44 teacher interviews were implemented during the the study. The duration of an interview was some 1-2 hours. All interviews were carried

out by myself and were tape-recorded. Mostly a list of questions was given to the respondents beforehand (several days, even weeks before the interview), even though they were not expected (and this was expressed clearly) to follow the list strictly. The interviews were transcribed from tapes to written text. Some of the interviews were conducted partly in English. Mainly, however, they were conducted in Finnish.

The interviews mostly took place in schools, but also in private homes, and even in coffee rooms. I did my best to create an undisturbed feeling in these situations and to achieve and maintain an atmosphere of mutual confidence. My impression was that the interviews often resembled casual conversations, and that we really had a good time in spite of the tape-recorder on the table. The respondents quite often seemed to forget that they were being interviewed. They told about their thoughts and experiences in such a natural way that they sometimes even happened to ask for my opinion, or for a hint, for some problems in their teaching practices.

In the beginning of the study I had assumed that I could avoid influencing the informants. Since my values had stamped the project and its focus, I wanted to leave the rest of the space free for them. I was aware that the interview questions and the entire research process would affect the respondents, so I did not plan any additional interventions. It was only later that the research project occurred as a probable developmental process to the participants. The study was quite obviously driving development.

Though noticing this development, I did not take a more active role, nor a role such as researchers have in projects of developmental work research. The idea of DWR, however, helped me to focus on transformations. Sometimes the decision to not deliberately influence the respondents made me feel that the situation was unnatural. The trust that I could sense would have demanded factual responses from my side.

It is also true that the choice of committed teachers was based on the assumption that - even if not asked to do anything extra - they would obviously start with (at least small) developments in their teaching practices, or that they at least would become more sensitive to the topics of the study. Yet, when this really happened, I felt somewhat dazzled.

In open-ended interviews (Denzin, 1970, p. 125, requoted in Silverman, 1993, p. 95) respondents can use their unique ways of defining the "world". They can raise important issues not contained in the agenda. Open-endedness is also required when assuming that no fixed sequence of questions is suitable to all respondents. Yet it would be a fallacy to believe that these kind of interviews would not lend themselves to making a form of social control which shapes what people say. If understood in this way, open-ended interviews are also a form of intervention.

In the interviews I tried to let the respondents speak undisturbed. I only made some extra questions to check whether I had understood them correctly. The respondents followed the list of questions at their own initiative, and also took great care. I had the feeling that they deliberately avoided talking nonsense and that they really wanted to be of help.

### **Interviews of the second and the third round**

In the second round (1994 - 1995) the (former) student teachers were working in their own schools. In the interviews most of the basic questions were repeated, and the matured research problem with sub-problems was considered. The possible development of the participants was now the focus. Another aim of the second round was to inquire in more detail about such thematic units as the informants possibly had put into practice during the ongoing school year. (A complete list of the questions in the second round is presented in Appendix 7.) Most informants also received an individual list of questions. These included

unclear and interesting items that I wanted to return to on the basis of the previous round.

The interviews of the third round (autumn 1995 - spring 1996) were mainly of a checking nature. The questions were plain: the notions of the teachers on the concepts of orientation, orientation basis, and activity theory, complemented by questions about their practices. At the end of these interviews I presented a minor preliminary analysis of each of them from the first and second rounds. This analysis was discussed and checked.

### **Materials about teaching practices**

Documentary materials were provided by every informant from one or more stages of the research. These materials dealt mainly with the practices that the teachers were discussing in the interviews. Most of the materials were from the second round of the study, because it was the most intensive period of reporting about practices.

The authentic materials include (1) plans and reports of thematic units, (2) evaluation material by the teachers and their students, (3) examples of learning tasks, (4) pictures and other artefacts (models of orientation bases) produced by teachers and their students, and (5) materials about observed lessons (the researcher's memos, videotapes and photographs).

With most, but not all, teachers the material is quite rich. I did not push them to deliver materials. The teachers work in different ways: For example, some of them characteristically used written plans, some did not.

### **Interviews of the students**

The students of the teachers were studied in order to find out about how well they were aware of "the tools" their teachers told me about in their



interviews. I also wanted to hear how the students had experienced the teacher's procedures.

The data came from some 150 students. I interviewed students of every teacher under study. There were almost 20 sets of meetings (group or individual interviews). After a teacher had been interviewed, his or her students were interviewed about the same issue. Furthermore, written questionnaires or evaluations were made to 9 groups of students. Most of these questionnaires were carried out by the teachers according to our mutual agreement and my prescription. Some of the questionnaires were also put into practice by myself.

In the student interviews I referred to the situations where they had been working with their teacher. In one way or another, I also explained the concepts of orientation and orientation basis to the students, since they were mostly unfamiliar with these concepts. The following list includes the ordinary types of questions posed to the students in the course of the study:

- 1           How do you begin to study a new thematic unit?
- 2           Why and how do you use orientation bases?
- 3           How do you like the use of orientation bases?
- 4           How do you conceive the measures of the teacher in an orientation process and what is their significance?

## 5.4 DATA ANALYSIS

Data analysis had began quite early, in fact. Decisions about the research design are part of it, and the entire research process is intertwined with analysis. There is no strict line where "analysis begins". Here principles of the "proper" phase of analysis will be presented.

### **Principles to begin with**

The vocabulary of grounded theory contains concepts such as coding and codes, categories, properties and dimensions. (Strauss, 1987, pp. 20-21; Strauss and Corbin, 1990, p. 61).

Coding means conceptualising data (naming or labelling the phenomena). It is the process of categorising and sorting data. A code is the term for any product of this analysis - for a category or a relation among two or more categories. Miles and Huberman (1994, p. 56) call codes "units of meaning".

A category is a classification of concepts (under codes). Concepts are compared against each other and they appear to pertain to a similar phenomenon. The concepts are grouped together under a higher order, to make a more abstract concept called category.

Properties are characteristics pertaining to a category. Dimensions are location of properties along a continuum; a property is broken down into its dimensions and subdimensions.

Open coding means unrestricted coding of the data, and it is the initial type of coding. The data are scrutinised closely with the aim being to produce concepts that fit the data. Axial coding, in turn, includes intense analysis of one category at a time. It leads to recognising relationships or connections between categories. (Strauss, 1987, p. 32; Strauss and

Corbin, 1990, p. 58.) These names of types of coding are not used further in this study, just the idea.

There were quite a few predetermined areas (for example sub-areas of the research problem) that I necessarily wanted to examine. This kind of prescription is not in line with the "genuine" grounded theory where everything is "raised from the unknown". However, when these prescribed areas were analysed further, the findings were raised as if from the "unknown" - by applying multi-level classification. One part of the data (concerning the concept of Students' Space) was studied in a manner more closely aligned with the genuine idea of grounded theory (see Appendix 10).

The full data from the teacher interviews were first analysed. The seven teachers who were student teachers in the beginning of the study were analysed separately. The data from the two other teachers were then reflected against those findings. (In analysis of the concept of Students' Space this distinction between two kinds of teachers was not made.) The materials from the practices and the student interviews or questionnaires were considered only after that.

### **Dealing with codes and categories**

The interview data were reviewed, categories or labels were generated, and a list of codes was created. The start list included some 30 codes or categories (Appendix 8).

The factors driving the creation of the categories were the theoretical and practical aspects of orientation that stem from the research problem. These were also to be seen in the interview questions. Some codes also emerged when reviewing the data. The data were coded round by round.

I took a "chunk" (usually a paragraph, or part thereof, seldom several paragraphs) asking myself about its major messages. A theme was coded as present, if it was mentioned repeatedly or with strong affect. I aimed at noticing the significance of the message in a given context. In most cases the chunks received even several codes. (An example of a coded page is presented in Appendix 9.) Coding was clearly based on my interpretation, thus it also was part of analysis. In the process of coding I kept writing notes, a kind of log or series of memos, about emerging ideas and problems.

Every coded excerpt received its own code-based "card" in the electronic files. One single excerpt could be found within several cards, depending on the the number of relevant codes attached to it. I used a personal computer to store and handle information, and in particular, to retrieve it. File folders assisted in identification of issues, persons and rounds of the study.

### **Further analysis**

After coding and categorising the process went on in two ways: (1) towards an analysis that was common to all the participants (collective case) (Stake, 1995) and (2) towards analyses of individual cases. As was mentioned above, the (student) teachers and experienced teachers were analysed separately. Thus, in a way, they were two collective cases. The common trend mainly recorded theoretical aspects of orientation ("the thinking"). Practices became more explicit in the individual cases. Nevertheless, these both "lines" were continuously crossing with each other because of the mutual reflection during the entire process.

In analysis common to all participants the entire coded data (about aspects of orientation) were analysed one code/one round at a time in order to discover a more abstract category of several incidents. For example, under the code "Functions of orientation" the informants were

talking about "consciousness", "consisting of several phases", and "being tested and re-tested". These seemed to be incidents of more abstract categories such as "(a tool) of thinking" ("consciousness") and "continuous use" (the two others).

Within those new categories I tried to discover what kind of properties and dimensions they involve. For example, in the category of "Motivation is connected with orientation" there were such properties or dimensions as "motivation supports orientation", "orientation supports motivation", or "no connection".

Any particular study may focus on only a few of the categories (Miles and Huberman, 1994, p. 61). Some categories proved to be overlapping and some to be useless during the process of analysis. Several overlapping categories were combined into larger clusters. Some categories were redundant, some poor. Some codes worked, some did not.

At the same time, I was proceeding with individual cases. They were also examined one code/one round/one informant at a time. The strong assertions found in the common part were partly driving these individual analyses. I was looking for linkages to these common assertions in the teachers' practices. The linkages could be derived not from the teacher interviews only, but from the documents and the data by the students.

Furthermore, I had files that had been coded under "Problems" and "Challenges", "Innovations" and so on. Analyses of those other themes or codes were merged with both the common part and the part of individual cases. The codes "Students' Space" and "Active learner" were dealt with separately (see Appendix 10.)

A constant move and crossover was typical of this process of analysing: I went from individual cases to the common part and vice versa, and from

interpretations back to original transcripts. It was necessary to review the original texts in order to see whether everything had been taken into consideration, and whether the assertions stayed in a relevant connection. Similar reviews were also made with the materials about the practices and from the student interviews. Both of these were checked in order to collate whether they fit with my interpretations of the teachers, and to discern what needs to be reconsidered. Also this was a process of writing log after log, which was a powerful help in finding threads of interpretation (see Ely et al., 1991, p. 190). (Notes from the analyst's diary are presented in Appendix 11.)

Rereading data of contrasting informants (Strauss, 1987) helped in becoming sensitised to the differences within the data and in illustrating the contents of categories, properties and dimensions. The range became more explicit, thus giving also keys for analysis.

The idea of developmental work research assisted in discerning transformations in the informants. The study might provide some seeds for further development in the area of orientation. Also in this respect the paradigm of DWR turned out to be helpful.

### **Coming to the results**

The results of the study are organised in three groups: (1) common results, (2) individual cases, and (3) the concept of Students' Space. The results attempt at illustrating three dimensions: The nine participants (cases) make one dimension. The second dimension comes from data analysis: from its various issues, developing themes, or other assertions. The third dimension is time, the three rounds of the study. The structure of the Results Chapters will be presented ahead, in Chapter 6.

## 5.5 ASPECTS OF VALIDITY AND RELIABILITY

How can one determine "good" research and "good" findings? By "good" we can mean true, reliable, valid, reasonable, confirmable, credible, useful, significant, empowering, and so on. The validity and reliability of qualitative research differ from those of the conventionalist positivist paradigm. The elements of this "trustworthiness" in a qualitative study are, according to Miles and Huberman (1994, 277), (1) objectivity or confirmability, (2) reliability or dependability, (3) internal validity or credibility, (4) external validity or transferability, and (5) utilisation or application. Similar presentations are provided by Ely et al. (1991), Lincoln and Guba (1985, p. 296), Marshall and Rossman (1989, pp. 145-148), and Silverman (1993).

Aspects of trustworthiness that deal with the research process of this study will be announced in the next paragraphs. The relationship between the teacher respondents and the researcher will be discussed first, as it is closely connected to the process of the interviews handled above. The trustworthiness of the entire study can be ultimately discussed only after the presentation of the results, in Discussion, Chapter 11. Questions, in particular, of external validity (generalisation, fitting with existing theory) and utilisation (significance) will then be dealt with.

### **Teacher respondents and researcher**

In the beginning of the project its main idea and reasons were explained to the researchees. I did my best to keep the respondents informed about the course of project (an example of the letters to the informants is presented in Appendix 12), and to renegotiate when the study turned to paths not initially anticipated.

All the nine teacher respondents stayed with the process until its end. Their cooperation made fluent progress possible. The fact that I know the

respondents - to some extent at least - is both an advantage and a disadvantage. The mutual acquaintance adds to the validity (credibility) of research. The teachers probably told me things that they would not have told an unknown researcher. On the other hand, for those respondents who were student teachers in the beginning of the study I perhaps represented the institution of teacher education. They may have assumed that I would expect answers in line with the principles and theories of the FBC Teacher Education, and they may have regarded me as a figure of authority that they needed to be amenable towards (Miles and Huberman, 1994, p. 265). Yet I don't think this is likely; the atmosphere of the FBC Teacher Education was always quite informal, which was also the way I sensed our relationship in the interviews and elsewhere.

We are all business teachers, the respondents and I. The similar context and background add to the credibility of the study; they help me to understand better what the respondents talk about. My experience as a business teacher and as business teacher educator makes me also biased: my viewpoint is that of teacher education, and I appreciate its principles, theories (activity theory in particular) and its values.

### **Objectivity**

The research process, the respondents and circumstances have been identified and described. The relationship between the respondent teachers and the researcher is described above. Methods and principles of data collection and analysis have been made explicit. The reasons for the decisions to alter the process have been announced (e.g., the change of the focus, the change of the research problem). Data have been preserved and stored.

The impact of the researcher is considerable, because she, and she alone, has both collected and analysed the data. The risk of subjectivity thus



exists. On the other hand, the data are firsthand - not transmitted, which adds to the trustworthiness. The biases and preconceptions the researcher can identify in herself, as well as her professional and theoretical assumptions, have been announced as explicitly as possible. Since the researcher uses the first person ("I") in this report, the reader can perhaps also recognise her personal emphases better.

As has been stated before, the research process has certainly influenced the informants: the idea of the project, the interview questions, the notions of the teachers about doing something useful when participating. The extent of this influence is difficult to estimate.

### **Reliability**

The biases of the researcher and the relationship between her and the researchees influence the study implicitly. They were detailed above as far as the researcher can recognise them. Background theories of the study have also been presented.

The range of the teacher researchees could have been larger, yet the justification of the choice has been pronounced. As to strong or weak data, there seems to be no particular qualitative difference between the interviews of the primary respondents. The interviews were quite rich with information; they contained a lot of relevant data to be coded. Two interviews of the first round suffered from a minor loss of data because of technical problems with the tape-recorder. This was compensated for in the complementing interviews.

A more extensive range of data would have added to the reliability of the study. Between the three types of data in this study there are differences. The primary data, the teacher interviews are covering and rich with information, but the student interviews are (deliberately) thin. The documentary material could have been more abundant with some

respondents, but it was more than adequate with most of the teachers. Data from observation was not very useful. It was thin and uneven; there are not even observations on every respondent. The data from the third round is deliberately thinner than from the other rounds since the third round was mainly of a controlling nature only. (See Appendix 6, Inventory of the data)

### **Credibility or internal validity**

The study is biased towards committed teachers. From the perspective of generalisation this is a weakening aspect, from the one of particularisation it is a strengthening aspect. The truthfulness of the participants was taken into consideration by selecting people who were known in advance. Yet the selection was based on the researcher's own experience only, though supported by discussions with colleagues at the FBC Teacher Education. My acquaintance with business education aided me to being alert to critical points in the stories of the respondents.

References to the data (excerpts of the speech of the respondents) have been added to the Results reports. Member checking (respondent validation) took place twice: preliminarily at the end of the second round, and quite comprehensively in February 1997. In February 1997 the researchees (all of them) examined the results reports and confirmed that the results and the ideas were consistent with their experiences.

Confidence in the findings can be added by triangulation. Independent measures of the findings ought to be in line, or at least not contradictory (Miles and Huberman, 1994, p. 266). In this study this double-check was manifested by triangulating methods and data sources: (1) teacher interviews vs. documents, (2) teachers vs. students, (3) three rounds of the study, (4) experienced teachers vs. less experienced teachers, (5) teachers with taught learning theories vs. teachers without them, and (6) various cases of teachers. A longitudinal study as such, where one aspect is the

search for transformations, enhances triangulation; one source (one round) is tested against another, and in this case, even against a third one (Ely et al., 1991, p. 96; re quoting Fetterman 1989, p. 89). Multiple-case sampling adds to confidence in the findings. "By looking at a range of similar and contrasting cases, we can understand a single-case finding (...) we are following a replication strategy." (Miles and Huberman, 1994, p. 29).

### **External validity**

A traditional generalisation is not possible on the basis of a considered sample like this, though some representativeness of the sample was sought by using informants of different characteristics (experience, domicile, etc.). Here we can rather talk about *petite generalisations* (Stake, 1995, p. 7): The number of cases is limited, yet they are studied at length. It is a process of cross-case comparison, generalising from one case to the next (Miles and Huberman, 1994, pp. 29, 35). Certain topics will come up repeatedly. Thus certain generalisations can be drawn. These seldom offer an entirely new understanding, but refinement of understanding. Stake justifies (ibid., p. 8) those *petite generalisations* in case studies: "The real business of case study is particularisation, not generalisation. We take a particular case and come to know it well, not primarily as to how it is different from others but what it is, what it does. There is emphasis on uniqueness..."

## 6 INTRODUCTION TO THE RESULTS

The teacher interviews in all three rounds of the study included key questions about the following areas of orientation:

- interpretation of the concepts of orientation and orientation basis;
- significance of orientation;
- characteristics of the orientation processes in the practices of the teacher informants.

Several other interview questions produced information about these areas as well. These questions dealt with, for example, the (Engeströmian) learning cycle, modelling, and problems of orientation.

### **Haziness and uncertainty in the definitions**

(5) "[Orientation] ... as a concept it might be hazy to the students, because it is hazy even to myself, hazy, hazy ..."  
(C/19Jan94)

(6) "You ask what orientation is? A difficult question."  
(D/17Mar94)

In the beginning it was not easy for the informants to define the concepts of orientation and orientation basis, or to talk about their significance or functions. The definitions were hardly mutually consistent, nor did they make a common and clear-bordered area. They rather moved between different viewpoints or perspectives, typically those of the teacher and those of the student. The interpretations were also mixed with critical assessments and value judgements. One example demonstrates a bricolage of interpretations in one and the same answer:

- (7a)
- L<sup>1</sup> "...how do you perceive orientation? What is it?"
- A "I think it is the making of an overall picture, and it is also a tool, both for myself and for the students, although too little used..."

A (Annie) at first presented two interpretations of the meaning of orientation ("overall picture" and "tool"), then two viewpoints or perspectives ("both for myself and the students"), and, finally, a value-based critical remark ("too little used").

- (7b)
- L "What do you mean by tool?"
- A "... that I can focus into the most essential, that I in a way outline in my mind what is most important in this topic, what the students ought to be able to do when this phase is over." (A/24Jan94)

When explaining the tool-nature A moved to the functions of orientation ("focus into the most essential", "outlining in one's mind"), to the object of learning ("what the students ought to be able to do") and, once again, to a perspective (students). A few months later, in May 1994, A was defining the concept of orientation basis. She emphasised two requirements for orientation: simplicity and subjectivity of orientation models (orientation bases).

- (8) "... it ought to be as simplified a model as possible and then the students could make outlines based on it, but they could also act. That they would have a clear tool ... and then, however, that it is subjective, that it is a view of some person about the topic. Someone else, when thinking of the

---

<sup>1</sup> L = interviewer (Liisa), others are disguised initials of the interviewees: A, B, C, D, E, G and H for the student teachers, and F and J for the experienced teachers. Dates are announced as day-month-year where the three first letters of a month are announced.

very same thing maybe sees it in another way. Maybe in a narrower way, or maybe more broadly."(A/16May94)

The searching nature of the answers of the informants was expressed in multiple small markers, such as "I think", "in a way", "maybe", "a kind of", "somehow", "something like", "difficulty", "problematic". The answers signalled hesitance and ambivalence ("hazy even for myself, hazy"). Although precise definitions were not typical, all the informants tried to say at least something. Some of them had a lot to say, some had not. This polarity may signal haziness, too. Furthermore, the answers were highlighting criticism, theoretical challenges, and contradictions in the conceptualisation and practices of orientation (emphasis by the analyst):

(9) "... I have begun to wonder what there really is behind the orientation, *what the idea is behind it* ... whether those orientations of mine, or those of the students, whether they are *put in the shade by all those jolly things* [they had been making all kinds of funny and extraordinary models] ... or whether I use orientation *too often* and that waters down the whole good idea. I have begun to wonder about *what will stay in their [students] mind at the end*, whether they remember the core idea, or something else [the bustle etc.]" (A/16May94)

(10) "... [I make all this] a little bit questionable [what has been taught in teacher education]. I feel that way, and probably even some other student teachers are critical with these issues... they are basically alright, and this is perhaps not the point. I wonder whether it is rather the way how these things are presented [to us], or something - somehow things are made too simple, as if they could be handled right away [in practice]. I would like to see some of the older colleagues come and show how the job is done with the help of models or something, because the practice is so different ... " (E/19Jan94)

With a variety of alternative interpretations, choices had to be made regarding what to concentrate on in data analysis: First, I would look for factors in common - possibly they would not be many. Secondly, I

would present various - those not in common - interpretations as if they made an artist's palette of a range of colours and shades.

### **Changes of interpretations**

The data from the first round indicated that some informants had experienced significant changes or transformations in their conceptions of orientation and in the related instructional practices. The excerpts below (11-12) contain information about the location of orientation in the learning cycle (11) and its connections to other learning actions of the cycle. Furthermore, they indicate (12) who are the ones who make orientation bases.

(11) "I used to think that it [orientation] exists in the beginning of the learning process, that it always belongs only there. But when I noticed that it develops and that it can be used in internalisation and externalisation, and also in evaluation ... it is a splendid tool for evaluation. They in a way changed. This enlarged my conception of orientation." (C/28Apr94)

(12) "... it [orientation] was new to all of us, so we were quite unsure how to start moving at all; at some phase we even thought that we would give quite a lot just ready-made [to the students], or that we [three teachers who were collaborating] would have built [orientation] just the three of us ... then we ended up taking the brave step to build it [orientation] together with the students." (D/26Apr94)

Marton's phenomenographic method has often been used to analyse interview data in developmental work studies. However, as Engeström (1986) has pointed out in his critique, such an approach involves a risk of freezing conceptions and of eliminating their inner contradictions. The current study of orientation was to be longitudinal and designed rather for discerning changes than a state of a conception only.

To conceptualise and to make sense will be another task of analysis. It is important to note that there are multiple levels of change: change as

retrospectively accounted and recounted by the informants, change as anticipated by the informants, and change as observed by the analyst when comparing accounts given by the informants at different points in time.

### **The structure of the result chapters**

The results of the study will be presented round by round in order to reveal the course of development or transformations as clearly as possible. Each chapter is constructed with two focusses in mind: the general and the individual. Various themes concerning orientation in the thinking of the student teachers will be accounted first, as an overview of conceptions. The profile of each individual informant will then be discussed to illuminate the overview. The profiles will reveal the student teachers' individual emphases and perspectives, and they, in turn, will be related to the practices of the teachers, the other part of the study. Profiles and practices together make the complete teacher cases, in which both individual conceptions and the respective implementations can be seen.

The results chapters (from 7-10) are mainly dedicated to accounts derived from the informants themselves, including the changes that the informants reported. The ideas and findings by the analyst will be discussed separately as remarks at the end of each chapter (round), although she is fully aware of the fact that even the particular accounts of the informants are affected by her interpretation.

The main focus of the result chapters will be on the student teachers, but each chapter will be supplemented by a section about the two experienced teachers, aiming at comparing their account with the one of the student teachers. Chapter 10 deals with the concept of Students' Space. In this



chapter the accounts of the (student) teachers and the experienced teachers will be discussed together, the structure of the chapter thus being different from the other three results chapters.

The results will describe the process of appropriation: The first round of the study will be called *groping in a common framework*, the framework being the one of teacher education. In the second round certain aspects are *established and also diversified: the individual emphases* are more distinctively visible now. The third round will articulate what *in the end was maturing and remaining* in the teachers' thinking and practices. The third round also alludes to what was lacking, thus forcing one to ask what should be thought about that. It is also of interest to *diagnose what problem areas will stay visible and to forecast zones of development*.

## **7 THE FIRST ROUND OF THE STUDY 1993-1994**

### **"GROPING IN A COMMON FRAMEWORK"**

#### **7.1 THE CONCEPT OF ORIENTATION**

##### **Definition of orientation**

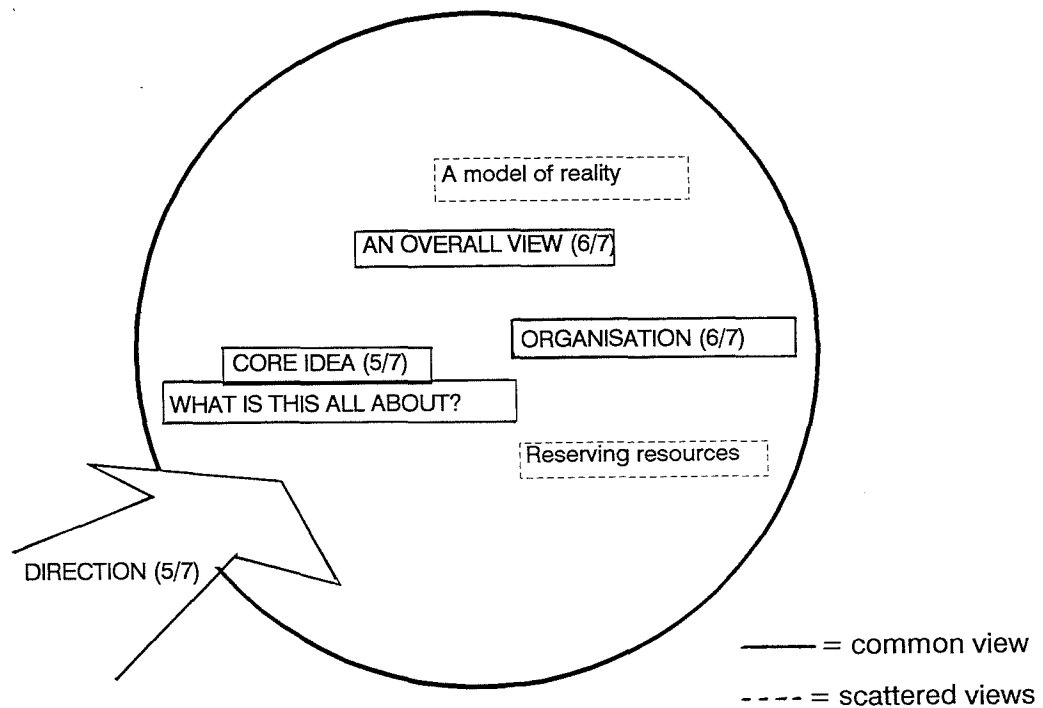
In the first round of the study orientation generally meant (1) a direction, (2) a core idea, (3) an entity, and (4) an (method of) organisation, according to the student teachers of the study. Most people probably relate orientation to directing. Five out of the seven student teachers did so. They pictured orientation using expressions such as "where we are going", or "what we are aiming at". Quite a few of them (five persons as well) also conceived orientation as finding a core idea or focussing or concentrating on something, for example:

(13) "It is important to know what the core is, what this is all about." (G/24Mar94)

Six informants out of seven related orientation to an entire unit, to an overall view or concept, or to outlines of something. ("Orientation helps to understand the whole.") Furthermore, almost all (six persons) articulated that orientation means organising the contents to be handled. To one of student teacher, orientation meant modelling the reality. One of them was not interested in orientation. He gave his interpretation, though:

(14) "Orientation is collecting or reserving resources for something." (E/19Jan94)

The various interpretations of the concept of orientation are presented in Figure 14. The numbers in parentheses indicate how many of the teachers gave each respective interpretation.



*Figure 14. Interpretation of the concept of orientation (1st round; the student teachers)*

### **Functions and characteristics of orientation**

Functions and characteristics of orientation are both discussed here within one category since it has proved impossible to keep them apart. The informants talked in a mixed manner when answering questions about the "functions" or "significance" or simply "characteristics" of orientation. Aspects of these became visible even in the descriptions of the concept of orientation.

Rather than a shared interpretation, the ideas about functions and characteristics of orientation are diffuse. In analysis all the various properties and dimensions related to this category were considered, no matter what their frequencies were. Figure 15 illustrates properties (1) supporting the common interpretations (presented in Figure 14) as well as (2) the scattered properties of orientation.

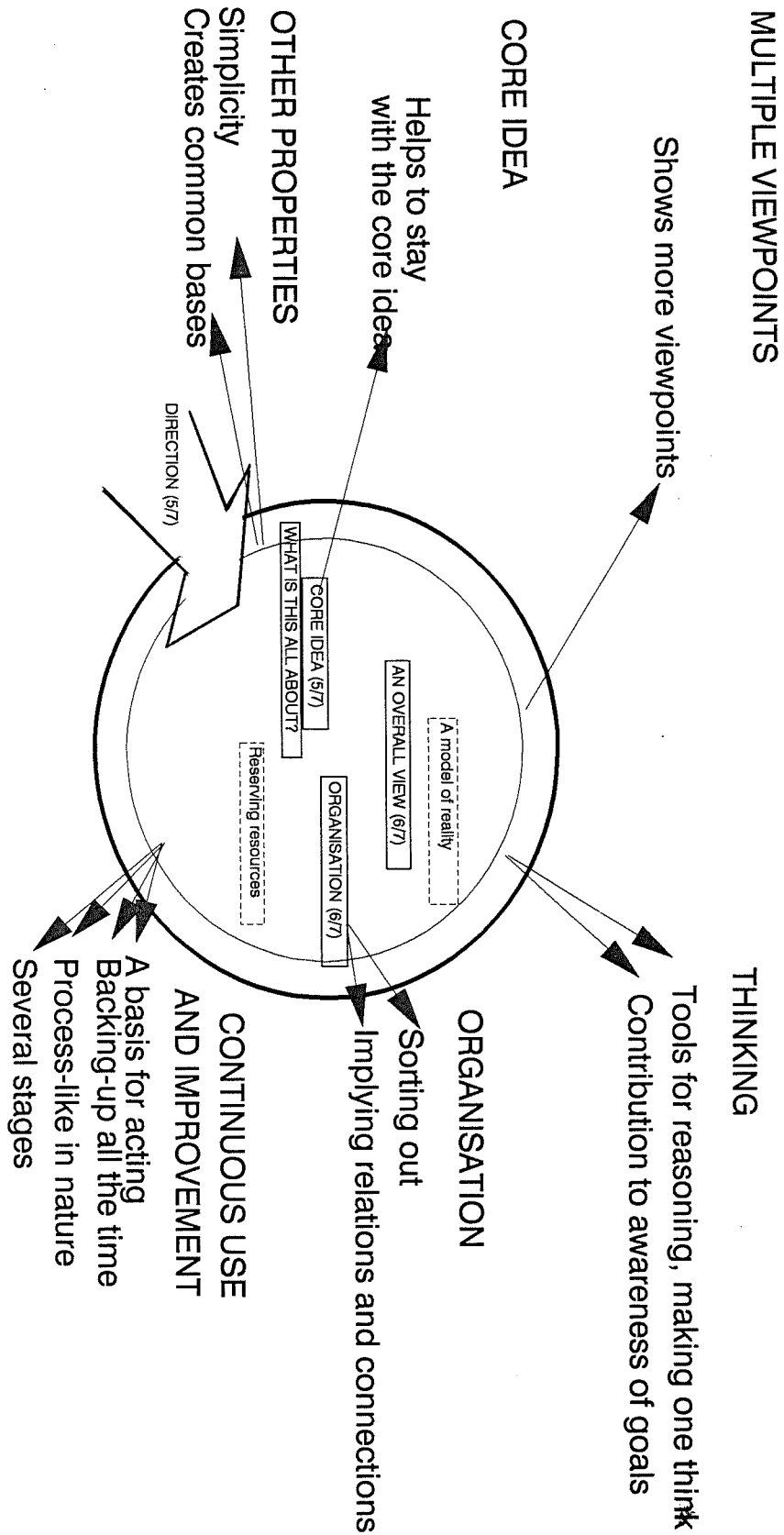


Figure 15. Functions and characteristics of orientation (1st round; the student teachers)

(1) Two or three properties are related to the common interpretations:

*a) Staying with the core idea*

(15) "It [orientation] helps in staying with the core idea."  
(A/16May94)

*b1) Organisation: sorting out*

(16) "Outlining, a kind of advance organiser is needed [in learning]." (B/27Apr94)

*b2) Organisation: implying relations and connections*

(17) "It [orientation] is not only analysing, but it is also a concept of a lot of details and of interaction between the details." (H/11Apr94)

(2) The scattered properties in the category of functions and characteristics of orientation may have been stated by few persons only, or even by just one person:

*a) Multiple viewpoints:*

(18) "With this system [orientation] one considers more issues and viewpoints." (D/17Mar94)

*b1) Thinking: a tool for reasoning*

(19) "... in learning, one ought to encourage people to make orientation bases or models, so, in a way, one really must think of those issues and.... Well, even if the model is not quite okay, one at least may figure out how valuable it is to ponder about things - that is an achievement in itself."  
(C/26Apr94)

*b2) Thinking: contribution to awareness of goals*

(20) "[Orientation is what one is aiming at in instruction, and] that the students would be aware of it." (C/19Jan94)

*c1) Continuous use: a basis for acting*

(21) "You need to be able to act on the basis of it." (A/16May94)

*c2) Continuous use: backing up*

(22) You can return to the model. (...) It is there in the background all the time. (C/19Jan94)

*c3) Continuous use: process-like nature*

(23) Orientation may live sort of a process (...) A model, after being created, will be tested, used, improved, evaluated... (C/28Apr94)

*c4) Continuous use: several stages*

(24) "A model may have many stages." (C/28Apr94)

In addition to the properties of multiple viewpoints, thinking, and continuous use, two more properties came up:

*d1) Other properties: simplicity*

(25) "Orientation ought to be uncomplicated." (A/16May94)

*d2) Other properties: common basis*

When orientation takes place in collaboration, the participants develop common ideas about the issue:

(26) "If we make something together, if we have such a common project with working life, it would in fact be quite fine and reasonable to construct something together at first. Both parts could come to a common idea of what this is all about, and what will be investigated more closely later on."  
(B/27Apr94)

## 7.2 THE ORIENTATION BASIS AND MODELLING

### The orientation basis

The concept of orientation basis was not unproblematic to define.

(27)

L What is orientation basis?

A Ye-a-h.

L What do you say?

A It is terribly difficult for me to think what it is, a model. What do I mean by that model, what is needed...?" (A/16May94)

Already in the course of teacher education orientation basis had caused wondering, and it was even regarded as an extremely exotic concept:

(28) "I only remember that we spent a long time in thinking about this concept of orientation basis.(...) Some of us thought that the whole concept is quite meaningless. And I had this idea of mine ... I tried to say that there is some kind of whole entity involved in it ... it did not get any applause from the others." (G/24Mar94)

The discussion below will consider only those aspects which seem to express something about orientation *bases* in particular, even though most of the student teachers of this study made no clear distinction between orientation (as a phenomenon or activity) and orientation basis (as a tool). Orientation often also meant orientation basis:

(29)

Orientation... It is something I can put down on paper, something "black on white". It is a figure that makes the whole concept clear to me. And when I have that figure on paper, I see it more easily and I can make changes and build up a new concept, a new orientation, until I am satisfied. Always when you have something concrete in your hand, it is easier to analyse it. And that figure, that tells you the whole process of something." (H/11Apr94)



The concept of orientation basis appeared in several forms in the answers of the informants. It was tangible (in many representations) or abstract (in the mind), or both of these simultaneously. Several of the informants conceived orientation basis as a tool or a model, either tangible or in the mind:

(30) "... and an orientation basis, it is some kind of tool for thinking, concentrating, and, on the other hand, for defining, or for some kind of focussing." (B/27Apr94)

For two informants orientation basis seemed not to be a model, but an understanding or a main idea (see also G's profile), and even something that needs effort:

(31) "I have been thinking... I want to say ... orientation has been here looking for the main idea, something apart from a picture." (G/24Mar94)

(32) "... I've not thought about it concretely, I mean how I'm doing it ... maybe I even attack the students quite aggressively asking "what do you know about this", and much conversation has been there (...) I've NEVER EVER asked them to draw anything, but to write up some of those issues, that's what I've asked. (...) I think that the student doesn't understand anything about orientation [as "orientation"], it is something internal that everybody is doing..." (G/28Apr94)

(33) "[Orientation basis is] an understanding about the fact that something needs effort." (E/27Apr94)

### **Forms of orientation bases**

The informants presented several alternative forms of orientation bases:

(1) graphic forms, (2) examples from practice and (3) other, mainly abstract, forms. The student teachers did not necessarily use all of these forms in practice.

1) An orientation basis was most typically created by *drawing* a model, a figure. The informants listed graphics such as charts, blocks and diagrams, mind-maps, and drawings (pictures). The types or classifications of orientation bases by Engeström (p. 98) were rarely represented in this data: only two respondents mentioned the issue.

2) *Examples from practice* ("real-life") as orientation bases came up with two informants who revealed such - partly overlapping - types as examples about a fictive or a real company, cases, simulated enterprises and practice enterprises.

(34)

L Did you say that the example of practice has been a kind of orientation basis of yours?

B Yeah.

L All right.

B When I speak about *an example* of practice...well it is something that I have used, and, in addition to that, [I also have used] kinds of cases..." (B/27Apr94)

3) *Other, not tangible, forms* of orientation bases came up with one informant who discussed *tactics, strategies, and guidelines, or model performances*.

(35) "Mostly they [orientation bases] are models. They may be abstract and even quite plain, and they may exist in many connections indeed. In football the coach creates tactics by using models and figures ... strategies in children's games (how to manage in playing) ... a model for teaching how to steer a ship, where new situations are emerging ... model performances ..." (C/28Apr94)

The idea of orientation basis could be housed in artefacts: videos, articles from a newspaper or journal and even tangible objects (one class made

even kind of artistic artifacts). A case about a company was put on video by a group of student teachers in order to serve as an orientation basis:

(36) "We made a case [example] of hotel-restaurant business on video. It is all about what happens when you establish a firm ... things did not become explicit from the video only, but also from what people talk about in the lesson (...) Well, it started with establishing [the firm] ... then some cost estimates were presented to the students, and we just let them think of these. After that we presented them real figures of an enterprise. We went on with various calculations: if this person in question would buy this hotel business, how much should he pay for it? How much ought the firm total in sales? Then we summed all the costs. All kinds of things like this were there at the beginning [of the course]. The system was a piece of video, a break and talk, a piece of video, a break and so on." (G/24Mar94)

### **Characteristics of tangible orientation bases**

Properties of tangible orientation bases were clearly presented by four (out of seven) student teachers. The teachers mainly talked about simplicity and dynamics of models. Complicated models might even stagnate learning.

(37) "The orientation models often look complicated - this is a difficulty in appropriation, sort of a technical barrier. The student doesn't believe that he or she might manage it. I've always, always, tried to tell myself not to use too complicated models." (C/19Jan94)

Flexibility in models may contribute to individual thinking, as another teacher put it:

(38) "There is no such model that is fine everywhere. One must be able to use one's own head. Also working life asks for critical thinking and questioning things." (A/16May94).

## Modelling

The category of modelling resulted in four properties: (1) modelling as a teacher's permanent tool, (2) modification of models during the learning process, (3) several, supportive models, and (4) makers of the models.

### *(1) Modelling as a permanent tool*

Within modelling (conceived as drawing of figures or using other tangible forms) as a permanent tool three contrasting dimensions were recognised:

#### *(1a) No models at all in instruction (one informant)*

- (39)
- L "You have stated before that you do not - at least deliberately use orientation [models]?" [The previous area of the tape is damaged.]
- E "That's right." (E/19Jan94)

#### *(1b) Tangible models are not used in instruction, but the teacher expects (and works towards) that "something takes place in the student's head" (two informants)*

(40) "... this so-called orientation basis derives from the learners themselves, and it develops (...) So first of all they are thinking, what is this all about, so they figure out (...) In the next stage they then have read something about the topic. After they have got acquainted with the substance somehow, the next phase, the internalisation, could be here ... the idea of developing an orientation basis would be redeveloping it, figuring out how they conceive it now. It may take a form of a figure, or of anything else, and after this it is reflected on the reality to get new notions and ideas of whether it works or not..." (G/20Jan94)

(41) "I think that one really needs to consider the principles behind, because they give the basis for the future solutions, with them in mind you can always reflect on what this could be all about..." (B/27Apr94)

*(1c) Modelling is clearly a tangible tool of teaching and learning (four informants)*

With the four teachers who used tangible models, three further properties were found: stages or modifications in modelling, several supportive models, and the matter of who develops the models.

*(2) Stages or modifications in models*

There is a polarity as to modification of models: Three teachers are in favour of deliberate modifications: In modification, the students' conceptions are supposed to become stronger and more clarified. The model can be changed considerably over the course of this step-by-step development. The learners are also encouraged to modify models.

(42) "This is the picture they made in the morning and I asked them to think of some corrections and in the afternoon I asked them to make a new picture and they changed a lot.(...) The first group, they have done most of these during the first three hours and then they explained what it was, how and why, the second lesson they had to read the chapter and to complete it." (D/26Apr94)

(43)

L ["... and what if the original model changes totally in learning situations?"]

A "I don't think it's bad if it changes totally. The new model can be considerably better developed, they [students] may only see things in another way. I don't think it's bad if they question the entire model. The point is, with any theme, to stay with the theme somehow. If they discard the model, all right, but then it must contain something new, something that is better developed." (A/16May94)

With one teacher the model is added to at the end, but not deliberately modified in the course of a thematic unit:

(44) "But when they had this orientation from the beginning they had no difficulties at all to put the pieces together. To make the puzzle complete. At the end we added some more aspects to the original orientation and after that, I think, they knew what financing is all about." (H/11Apr94)

### 3) *Several supportive models*

In a learning process several mutually supportive alternative models may be used. An informant talks about "major and minor orientations":

(45) "Well I think the minor orientations support each other, and they are needed, they must be there. But then, indeed, there is [the question] to what the big orientation is related." (A/16May94)

### (4) *Who makes the models?*

All of these four teachers who actively used tangible models were of the opinion that the students have the central role in the making of the models, perhaps assisted by the teacher. The students' activity was considered an asset, and their (students') own thinking was emphasised.

(46) "I think that the student must use the area between the ears, question things, be very critical. They must be able to make models and not be given them ready-made, not to have them believe that "this must be so since someone is telling me it is". (A/16May94)

The students' models ought to be accepted even if they are not quite correct:

(47) "For example, in those descriptions of "how a company works" one could see different types [of models] - and even ones not all that correct - but then it could be figured out that things can be understood in another way, that there are many ways to perceive the reality. I think one needs to be

quite careful not to turn down or revise their models - they will find it out for themselves after a while when tactfully guided." (C/19Jan94)

Modelling is pointed to as a way of enhancing learning, particularly if the learners themselves develop the models, individually and independently. Models help the students see interconnections ("reasonable linkages") within a phenomenon thus illuminating various ways to comprehend it ("to conceive the reality").

(48) "... they [students] developed those descriptions of activity [of a company] on their own. I am quite happy with the results, as they could figure out such reasonable linkages about how a company functions..." (C/19Jan94)

### **Problems and doubts about modelling**

The problems and doubts about modelling became explicit in two aspects: (1) space for individualism and (2) the external form of the models.

1) *Students' perspective, individualism* (as to representations of the models): Tangible models are not necessarily fine for everyone. Learning and orientation bases may have a subjective meaning for a student. In fact this is related to the external forms as well:

(49) "A model is not necessarily an easy tool for everybody. For some a spoken presentation of a model might be better than something that can be seen, such as a model on the blackboard." (C/19Jan94)

2) *External forms*: The external forms of models are problematic. The figures easily become complicated, formalistic or stereotyped, which made one teacher (A) ask whether there is any other way but drawing. Another teacher (C) sensed the risk that the students are not capable of making models, or of conceptualising. A third informant felt that she was not skilful enough in drawing:

(50) "I belong to the generation that read everything and ... so does not understand pictures ... that's the point ... but I think I am getting more and more pictures nowadays. I've noticed that when I read something I might make a small picture beside the text so that I remember it. So ... [a bit shyly] I think I am developing." (D/26Apr94)



### 7.3 ORIENTATION AND THE CYCLE (OR SPIRAL) OF LEARNING

Every informant spoke about connections between orientation and the (Engeströmian) learning cycle. The notions concentrated on two aspects:

- 1) There is a connection between orientation and the entire process of learning. The overall nature of orientation and how it extends into the whole cycle of learning are somehow articulated by several informants. Some informants have even experienced a change in this particular respect: They first had related orientation to the beginning of the learning process only.
- 2) There is a connection between orientation and other learning actions of the cycle. The student teachers typically mentioned motivation here, but also linkages to evaluation came up. Connections to other learning actions were unusual (see an exception in Excerpt 11).

#### **Orientation in the entire learning cycle**

Orientation and its connection to the entire learning cycle was not a homogenous point in the answers. Two informants were dealing with it more or less implicitly, and in one case it remained obscure. Four teachers explicitly expressed that orientation is within the entire learning process. Orientation might be at its strongest right at the beginning, but it lives all through the process of learning, and it is transforming.

(51) "Orientation is connected to all learning actions. In a way it is the same as learning activity. It lives and expands in the course of the process. (...) Its stages are overlapping. (...) It does not end, but keeps transforming. Orientation is made in the beginning, but it is later re-examined."  
(C/28Apr94)

Three of these four informants spoke explicitly of a change: They now connected orientation to the entire cycle, but first, when they began using orientation in instruction, they had thought of it as belonging just to the beginning of the cycle (see also Excerpt 11):

(52) "I used to think earlier that orientation is a kind of door or an entrance only, but now I think it is something larger, something that more extensively covers issues that will appear later on. (...) quite extensive from one end to another (...) so you could continuously be working in its framework or have it in the background." (B/27Apr94)

### **Motivation and orientation**

As motivation emerged strongly with some informants, I explicitly began to ask about it from the others as well. Yet two of them did not say much: H said that she has not been thinking about it, but "certainly it has some influence if they know that something is useful" (H/11Apr94). A did not particularly mention the issue.

The connection between motivation and orientation had three properties:

#### *1) Motivation and orientation get mixed: motivation is within a good orientation*

(53) "I often mix motivation and orientation, they are very close to each other (...) so when you really start thinking about orientation you'll meet with the same means for orientation and motivation. Well, working life, a model about it, it is a means of motivation. They are closely bound to each other." (C/19Jan94)

(54) "[good orientation] ... is that you really are talking of the topic [at hand], that you are fully acquainted with it, there is the motive embedded also." (B/27Apr94)

*2a) Motivation supports orientation: motivation is more important than orientation*

(55) "In summer when I read about those things, orientation was something I had never ever heard of before, but motivation has always been something I really have wanted to put a lot of effort to. (...) Motivation, it is together with the orientation. I now always try to take aspects from real working life, to create motivation and, at the same time, orientation, to get all students along, make them interested in (...) If I had written this in the beginning of June, I would have talked quite a lot about motivation and nothing about orientation - it was the state of beginning for me."  
(G/Mar94)

*2b) Motivation supports orientation: If motivation does not work, orientation is also difficult:*

(56) ... in fact, motivation is the key for tuning the students. Sometimes when the tuning is all right, even astonishing things happen ... or, if motivation does not work, also orientation, the direction, is difficult." (C/28Apr94)

*3) Orientation supports motivation:*

D was asked about motivation in March (Excerpt 57), and her notion was vague. In April (Excerpt 58) a slight new idea became explicit (without my particular question):

- (57)
- L "... do you see any connections between orientation, motivation, evaluation, and those other learning actions?"
- D [A very long pause] "Well, they might have, but somehow I never came that far in my thoughts. They are in a kind of a novice phase ... my thoughts have been around orientation and its practices only, how to implement it ... I have not had the time to fit it to anything ... to think about it in a more finished way." (D/17Mar94)

(58) "What I've said at first that I thought it [orientation] was just an introduction, but it is actually learning. And when you are thinking, it is deeper somewhere in your head when you just hear something or you do some traditional kind of exercises ...somehow I don't know if that is [inaudible] with everybody but it motivates. It [orientation] makes them understand that this is why I have to know that an this is why I have to do that. (D/26Apr94)

### **Evaluation and orientation**

Three informants mentioned particularly that they, mainly together with their students, have been reflecting on the orientation basis (model) at the end of a unit - here *orientation supports evaluation* (see Excerpt 87 and Practices of C).

(59) "At the end of the entire learning process one ought to return to that [orientation basis] to see whether we have learnt anything at all, whether we have learnt what was supposed to have been learnt. Then we might ponder whether we ought to do some rework." (A/16May94)

## 7.4 INDIVIDUAL CASES AND PRACTICES OF ORIENTATION

The researchees seemed to approach the phenomenon of orientation from their individual viewpoints. Their emphases were emerging from a variety of interpretations, feelings, attitudes, and perhaps doubts and hesitancy. My impression was that they would have produced - if put together - a rich total account fully in accordance with the ideal theoretical representation of orientation at the FBC Teacher Education. The profiles and the accounts of practices in the next sub-sections will show the trends and features of these individuals in more detail.

As has been indicated before, the cases are constructed on the basis of the student teachers' own reports. The further interpretations and conclusions of the analyst will be discussed separately in Section 7.5.

### 1) Case (A)

#### 1a) Profile of A

A stresses problems of modelling and orientation bases. She is searching for uncomplicated and creative models. Modelling ought to give the students plenty of freedom, and she underlines the active role of the learners' own orientation.

(60) "Somehow I am now circling around those pictures and boxes too much. The difficulty lies in figuring out how to make new kinds of those orientation bases. (...) I ought to simplify somehow." (A/24Jan94)

(61) "My instructions aren't really strict at all, in fact I have only this one which says that... what this orientation basis has been. Let's look at the models that the others have done a little bit and then you make your own models, and you make them exactly as you wish, such models that make your learning easier." (A/24Jan94)

## 1b) Practices of A

### *Example 1: course of marketing*

The students (aged about 20-22, in the secretary programme of the 2nd year - the last year of business college) and the teacher agreed to repeat certain areas from the previous year: *Cornerstones of Marketing*, *Comprehensive Marketing* and *Market Segmentation*. The students made models of each area as teamwork. Quite a few of the models seemed to be metaphors based on the students' own life and experiences (examples in Appendix 13).

(62) "They also located suitable articles in newspapers, good for this model, or where it had been used. (...) And I think it is fine that in these models they looked for an idea from real life, and they gave reasons why something "looks like this or that" ... [they were] pondering ... a business idea, ok, it must be a horse or something four-footed to indicate that no part can be left away, otherwise the business idea won't come true." (A/24Jan94)

During the schoolyear 1993-1994 this particular class developed several kinds of creative orientation models of areas of comprehensive marketing (more examples in Appendix 14).

In order to make the students evaluate their models at the end of the course, A asked the students about core ideas of their orientation bases and about the context they could relate the models to. The latter was answered in three basic ways (Field Book, questionnaire and analysis by the researcher):

- (a) The models show towards the ultimate outcome of marketing.
- (b) The models imply comprehensive marketing.
- (c) The models help in illustrating the learning of marketing.

In a discussion (30 March 1994) that I had with these students they talked about their experiences when making these models. They presented the following opinions:

(63) "When you do it yourself, you learn it better. You need to understand before you can act. Also when you look at the outcomes of the other students, you quite soon see the linkage. You know that you know this, you can identify this, you begin to remember, they [orientation bases] are like keys." (Student 1)

(64) "You also learn to change the abstract things into concrete ones. Many books are difficult to understand, but in this work you have tried to explain things more concretely and simply." (Student 2)

(65) "In winter when we made them [Appendix 13] I really felt lost ... we felt panicked indeed in the class, what is this ... now this second time it was much easier, this was quite nice." (Student 3)

### *Example 2: Sports Shop*

Together with the students (aged 17-20) of the first year of business college A implemented a thematic unit about marketing and purchases in an enterprise. The students selected a fictional company they would like to work on, deciding on a sports shop. (Appendix 15 includes a description of the thematic unit, student interviews, and photographs of a large comprehensive orientation basis that the students made step-by-step about the activity system of their company.) The students spoke how they experienced having learnt to find linkages to real working life. In their opinion they learned the contents of the course well, and they had had a nice time (excerpts of the interviews in Appendix 15). In later thematic units the students often referred to the fictional company: It had become a kind of (orientation) basis for them.

(66) "They [students] put two more pieces of work into practice, one being establishing a company and the other was a task of marketing. Now they began to work on, and they keep on working on the same company all the time [laughter] - skateboards and skis here and there and everywhere, it's fabulous I must say. Most probably, it has been sort of a good tool for them (...) as even if we change into quite another topic, they once again take up the same ideas and only change the perspective, so that's a good thing indeed. And since they made it on their own, it derives from their world. It is business, but it is business which is quite close to them. This seems to have helped them to outline this, and now they can use the basic ideas from there, and take advantage of them. A good thing indeed. Skateboards everywhere!" (A/16May94)

## 2) Case (B)

### 2a) Profile of B

With B, all learning, including orientation, is clearly and tightly bound to the reality (and activity) of working life. Cases are typical orientation bases for him. B does not use any particular tangible models. Yet he accepts them and lists various examples of them (see also Excerpt 34).

(67) "I think that also a case is an orientation basis, or it might be text, a video ... why not ... an article to start with ... It might be even an empirical company - well this is quite demanding an orientation basis, but as an idea, why not?" (B/27Apr94)

B aims at creating a way of thinking in the learner ("a model in the learner's mind"). He aims at learning the principles - learning the mere techniques is not sufficient. In the beginning of the course he wants the learners to know "the rules of the game" first.

(68) "... you might discover fine problems in theory, but when you go to practice, you'll find no such problems at all (...) the students really ought to acquire the skills to work and solve problems in practice. This can take place not only



by training and practising, but also by taking principles into consideration, because that gives a basis for changes and solutions for the future. " (B/27Apr94)

During the first round he came to the idea that students could make graphic orientation bases:

(69) "... my thoughts are different now. So far orientation has always been made by myself, but now - at least this is a goal for me - it could be made by the students, or in collaboration, yes, preferably in collaboration." (B/27Apr94).

## **2b) Practices of B**

When B tells about his practices of orientation, his focus is on concrete situations of working life. They point at a comprehensive understanding of the situation, and at creating tension in order to raise motivation. In a course for farmers (agricultural entrepreneurs) he posed concrete, and delicate, problems in estimating the optimum quota of milk production.

(70) I thought we need a sore problem linked to their work, and the milk quota is such an issue. The milk quota, if it is exceeded ... the farmer gets nothing but minus for the excess, that's 1,65 mark, otherwise you'll meet with the excess quota. It is such a delicate question for them ... and also when thinking about management accounting or alternative calculations of tractor investments. It was easy to start with this [I said:] think of the situation that you have come to the end of your quota, it is too small and then you think about what alternatives you have got in this situation, and how much it is wise to pay for that milk quota. I NEVER had such eager folks as they were, and when we had to finish after the two days, those ten people almost were sighing "Why did this have to end already!" (laughter)" (B/27Apr94)

B uses examples of enterprises as orientation bases (a bakery, a service station). He starts by making the learners calculate the situation of a company on the basis of information he gives them. B points out the

vitality of exact information about real circumstances, and he is strongly of the opinion that a teacher has to be quite well acquainted with the practice.

(71) " ... in orientation there is the problem, bound to this practice of work - now I'm thinking about the milk producers again - that motivation is quite sensitive to going on about something they think is totally wrong, even if it is something trivial only. So I was quite accurate with numeric examples, I was EXTREMELY accurate with the examples to lead to relevant outcomes. Quite often I just talk and use nonsense examples, but now, now I could not make it that way at all. We ended up with a target price of 3 marks 61 pennies for a litre of milk, and you'll never guess in what detail it was analysed that "how is this, whether this is to be attained". But I had counted it that thoroughly, so it definitely was valid with any fact, all the seasonally levelled prices, all the production pennies, with anything. It worked perfectly, 100 percent it worked, but had there been a mistake let's say even of five pennies only, the basis would have disappeared... that this teacher is a guy not to believe in." (B/27Apr94)

### 3) Case (C)

#### 3a) Profile of C

For C modelling and models are crucial in orientation. He gives a many-sided definition of orientation ("reality", "activity", "before starting", "several stages", "growing"):

(72) " Orientation ... it may mean quite a lot of things, but the first thing to come into my mind is that it is a model about reality or activity, for instance, that is developed before something will be investigated more closely, or internalised or externalised. It is a kind of description about how an activity is created. It may have several stages. It may live like a process, growing and being added to ... if it is a large thematic unit. It may be, it may be some algorithm ... or description of a method or a search for cause-effect relationships, or, how something is constructed, or ... or .... that's how I understand it." (C/19Jan94)

The learners' role is central: they are the ones to make the models, and modelling should be ongoing throughout a long-term project. The teacher ought to remember this role:

(73) "It is of utmost importance for the students to be conscious about what we are developing here and where we are going. In that orientation basis or orientation model they, in a way, have a map of how one should proceed. In that sense it is extremely significant to the students, also to the teacher. But it is easily forgotten, at least I feel I have often forgotten, that it is important to the students."  
(C/19Jan94)

### 3b) Practices of C

In C's practices modelling is intertwined with long-term intensive working projects. He has had a key role in implementation of a project on a practice enterprise in his school. This large thematic unit - the entire project lasted one school year - aimed at figuring out how a company works. The practice enterprise<sup>1</sup> (a simulated company) is a manufacturer of wooden doors and window frames. The thematic unit was being planned according to the learning cycle of Engeström. Right in the beginning the students, two or three together, made an overall model of the company (example in Appendix 16a). Later in the process the students made detailed models of various functions of the company. Finally they made another overall model that was compared to the original one (Appendix 16b).

The students' opinion of this work was positive:

---

1

The simulative "practice enterprise" functions like any real company (correspondence, office equipment etc.), only money and goods are not transacted. See some details in Appendix 30.

(74) "Modelling helps in putting partial areas together. Well, you need life experience and work experience, too. In the process, little by little, the view becomes clearer."  
(Student/22Nov93)

In their SWOT-analyses<sup>1</sup> the students stated that this kind of implementation contributes to practical and overall understanding of a company's functions (FB, reports of the students 22Nov93 and 28Mar94).

#### 4) Case (D)

##### 4a) Profile of D

D conceives orientation as the making of a picture. Previously she used to make no pictures, but she thinks she has learnt now (Excerpt 50). This process needs collaboration between the teacher and the students, and the students' thinking is a vital issue. Connections within a thematic area are processed into a developing, dynamic picture. During this year the process has been transformed: the students often now make pictures on their own:

(75) "The first pictures that the teacher trainers had made here [at the FBC] ... were actually pictures, of cars and things...so that kind of influenced me. But then I heard more, later on, and when we did it in our group of student teachers, it changed. And then, now last spring, when X [her supervising teacher] was here in our school, I was pretty... well I don't know... I had the courage to try it in a different way, so that the students actually, they did it. I didn't try to get it in any form, I did not even try to get all the ideas I had thought about. I just stated: You had some things that I had not thought about and then we left it like that. The groups had made orientations themselves." (D/26Apr94)

D refers to her humble wish for collaboration between teachers, but is concerned about possibilities:

---

<sup>1</sup> Strengths, Weaknesses, Opportunities and Threats of an object (here: working on the practice enterprises)

(76) "So if I got one teacher ... we have got the [similar] courses so we can work together... but then we could do a couple of [extra] hours without getting anything [paid] for it, but then again that won't work for a longer time ... that's something...hm...how to interpret...with whom ...how does it work ..." (D/26Apr94)

#### **4b) Practices of D**

D tells that she is not yet well acquainted with orientation, but she keeps training and experimenting. From making a picture of her own and "forcing" the students to make a similar one she has moved to a method where the students make pictures and discuss them (examples in Appendix 17, "How does a firm function?"; see also Excerpt 42).

(77) "Well, it changed a lot actually during this time... When I started... when I made my first orientation and then where I am now... Actually completely different. If I compare the time last autumn when I tried this for the first time. (...) the main thing was that I really didn't know what it was. I just thought I understood, that we had to get a kind of picture of the items we were going to deal with, and I asked my students to think about the topic and then I ... I made a picture of it. They gave me their ideas and I FORCED them into a picture." (D/26Apr94)

#### **5) Case (E)**

##### **5a) Profile of E**

E underlines the joy of learning: It should not be extinguished by stiff formalism. Motivation is crucial. He even answers the question about orientation through motivation:

(78) "In this business of orientation it is most important that it is not [orientation] alone, but it is motivation that everything starts with. It is the first. Orientation will then come, in a better or a worse way, if there is motivation ... it gives an opportunity of orientation. I think that motivation is the key issue." (E/19Jan94)

The data of E remained thin in the first round. The advance learning tasks he had made for teacher education in the summer of 1993, and his learning contract (9Nov93) revealed interest in the practices of working life and in cross-curricular collaboration at school. Yet in the interviews he did not talk about these ideas and thereby gave an impression that his method is traditional classroom teaching. E seems not to appreciate orientation, neither the theories nor the larger framework of teacher education (see Excerpt 10). He expresses, however, some trust in this study:

(79) "I would like to see some of the older colleagues come and show how the job is done with the help of models or something, because the practice is so different ... But it is a fine thing that you are investigating this, as you are also doing it in your teaching practices, so there are many levels and you are acquainted with it. But then there are those researchers who do and do research only, and then you ought to manage the situations ... and the students are somewhere and..." (E/19Jan94)

### **5b) Practices of E**

E does not use orientation as a tool of instruction, because he doubts its significance. In the first round he did not talk much about the issue of orientation, not of his practices either. E appeared reserved and remained opaque in the first round.

## **6) Case (G)**

### **6a) Profile of G**

G emphasises working life, learning tasks, and the active role of the learners. His great interest in pedagogics has a short but vital history: he started with pedagogics only during the summer before teacher education. "I am very motivated and strongly orientated towards pedagogics and didactics", he states in his learning contract (27Sept93). G has made - on

his own - a large comparison of various learning concepts (behavioristic, humanistic, cognitivist, and activity-theoretical). He tells that he is aiming at a complete learning process in his practices. In orientation, it is vital to find out "what we are talking about":

(80) "I think the students become oriented in the same way as I do myself. Here comes up one silly thing that perhaps is good to say aloud ... I suppose that, with the students, when we make something, it goes into their head and I think I almost make them bored by keeping asking whether everything is clear. I think it is important that everybody knows what we are talking about." (G/24Mar94)

G conceives an orientation basis as a picture. He might himself draw mind-maps, but his students do not make any tangible models. The students ought to form a preliminary understanding (in their minds) first, and to expand it within the learning process (see Excerpts 31 and 32).

(81) "Maybe I said it last time already, but I want to say it once again - what I think about orientation. I am a "heavy user" of the mind-map system, and for me the orientation basis naturally means a picture." (G/24Mar94)

## **6b) Practices of G**

In the beginning of a new thematic unit, G gives materials (hand-outs, copies of articles) to his students and discusses the main ideas of the new course. The students then might write their (preliminary) understanding of the theme of the course. Courses are mainly built on a chain of learning tasks. Visits to companies are normally organised as part of the courses. The themes and problems of the thematic units originate in the real practices of companies and entrepreneurs with which the teacher has permanent and lively contacts. G tells about a course on the value added tax system (examples of the first and the last learning task of this course are found in Appendix 18):

(82) "There are learning materials and they [students] get some kind of basis to understand what this is all about. They then are able to bind everything to come later to that... When they later will be working in an enterprise, they will be capable of asking questions immediately and of seeing how this company has implemented the value added tax system. And if the company is not managing this very well, these students are able to organise and implement the system in practice. They have a good basis for that." (G/24Mar94)

In instruction, G keeps asking questions and raising discussion. This is also stated by his students:

(83) "With him [G] you need to have an opinion, you really have to get acquainted with the materials." (G's student, 8Febr94)

## 7) Case (H)

### 7a) Profile of H

H tells that she uses orientation bases particularly in the beginning of a course (of a thematic unit) where they have a guiding role. Orientation bases are often used also at the end of the unit to check and ensure that everything needed was included in the course, and to show the connections of the elements in the course once again. The teacher conceives an orientation basis as a figure that sorts out the contents of the course (see Excerpt 29). During the year of teacher education orientation began to work for her:

(84) "I had read about orientation bases in books, and I had seen figures and I had heard how these function, but I understood absolutely nothing about them. It didn't tell me anything. I just had the figure, ok, you can have a figure of how you repair a machine, for instance. And you can make proper figures and so on. But I couldn't see the aim; why should I do this. And it is even more difficult to think how students could make the orientation basis themselves. Then I found out, in my classes, that it worked - it was like a flash." (H/11Apr94)



H prefers orientation bases made by the students themselves. The students are perhaps supported by material given by the teacher. H emphasises the students' thinking and understanding, and justifications. She has a conception of her own about the contents of the unit, but the students may keep their own ones.

(85) "I think that all of us... we are thinking in a different way. You have your way of thinking and my way is a little bit different and my way is not the only right one."  
(H/11Apr94)

### **7b) Practices of H**

In the course on *Financing* the students at first read an article about the theme and discussed it. On that basis they figured out the process of financing as a representation, or a model (an example in Appendix 19a).

(86) "In the beginning the students were just staring at me "you must be crazy, can we do that?" - "oh, yes, you can, you just think about what kind of things you have to take into consideration." It took about half an hour, maximum, and they had done it. And they had very, very interesting ideas. Especially in one in which there was an aspect I had not even thought about." (H/11Apr94)]

H tells that the students succeeded quite well even if they were astonished at first (because of doing things without "having them taught"). They also produced some ideas she had not considered herself. The orientation bases of the students were discussed together, and H presented and justified her own propositions, too. Throughout the course, the students were to keep their figures as guidelines for their progress. H tells of the results:

(87) "It was very interesting, because financing has been one of the most difficult subjects, courses or themes in my

classes in the past. But when they had this orientation from the beginning they had no difficulties at all to put the pieces together. To get the puzzle ready. At the end we added some more aspects to the original orientation and after that, I think, they knew what financing is all about." (H/11Apr94)

H's students indicated (Field Book, discussion 11 April 1994) that it was quite difficult to make figures at first. They presented various opinions about working in this way. They had both understood and not understood the idea (whether this was useful, whether one could get a broader view, whether their attitudes had changed) and they had figured out various perspectives (employer - employee). They also told how they had managed in developing models without having knowledge in advance: They took advantage of their work experience and contents of other courses, of collaboration and reasoning. The students remembered the later use of models in different ways.

(88)

Student 1

"I had never done this kind of things before. Well, it was about the financing of the firm. I have been working in a few companies, but I have never thought of this from the employer's perspective, always from the view of an employee only. This makes you think, this forces you to think. You need to think of the connections between things, what depends on what, how things have influence on some other things...but I can't tell whether this was useful after all ...we made it quite in the beginning [of the course] and we didn't know anything about the subject..."

L

"You started with this new study unit without any previous knowledge, yet you produced quite nice figures and models. How did they then come up?"

Student 2

"Well, I just thought of the situations in my job. And some students in the group knew something, some others something else, we just put it all together..."

Student 3

"We just had finished one course in accounting ... there was a model that we remembered, it helped a bit [she tells about the balance sheet]." (H's students 11Apr94)

(89)

L "When you went on, did you use these "pictures" of your own? And how much? And how?"

Student 3

"I do not think we used them anymore."

Student 1

"I think we did. We went back to these models through during a lesson, didn't we? We commented on each others' models, and all the models were different." (H's students 11Apr94)

H has also continued with these ideas when working with other courses, for example a course on the internationalisation of a company (a model in Appendix 19b). Her main message to the students in the beginning of a new unit has been: "You already know things. You just need to think and put pieces together." Sometimes it is not even necessary to give them material for that (articles etc.).

## 7.5 REMARKS ABOUT THE FIRST ROUND

The findings from the first round dealing with the concept of orientation are to be seen in Figures 14 and 15. Other assertions, even striking ones, in the first round were (1) individualism, (2) contradictions of modelling, and (3) the strong link between motivation and orientation. In myself the round also evolved thoughts about the object of learning.

The first round took place during the teacher education programme. A common framework creates a common culture. What the student teachers indicated in the interviews was in line with the contents of the programme of teacher education. It is natural that they were reflecting its framework and ideas. Nevertheless, rather than features common to all of them, the informants were displaying various combinations of the issues of teacher education: Each informant seemed to be an individual, as if making a personal journey of exploration within the (common) landscape of teacher education - and also in the landscapes of their ordinary contexts of activity.

### Transformations and other findings

A more *established understanding* of the phenomenon of orientation was emerging among the student teachers of this study ("a direction", "covering the entire learning process", "a core idea" and so on). Orientation and orientation basis began to become appropriated as *tools* in the thinking and practices of most of the informants. They began to pay deliberate attention to orientation, and the phenomenon "got a name":

(90) "Well, in a way I have been conscious of the existence of such a thing, but it never had a name (...) in these studies, in a way, it has got a name, what it is." (C/19Jan94)

To some extent, *the concept of orientation was interpreted* in a generally similar way by the informants, but the more detailed interpretations

involved *a wide range of different properties and dimensions*. *Motivation* appeared to have a strong connection to orientation. Also few signs about *evaluation* being linked with orientation could be discerned. Several informants experienced that there is *orientation not only in the beginning*, but throughout the entire learning cycle. Yet connections to other learning actions than motivation and evaluation did not appear. Some of the informants had *appropriated modelling*. Some had begun to orientate together *with the students*, which was not typical of all of them in the beginning (of teacher education). The active role of the students was, in general, quite strongly emphasised among the teachers of the study, and in the course of the year some of them deliberately shifted the initiative to the students. This occurred with modelling as well.

Active use of tangible models, including their modification, arose in earnest with one student teacher only (C), and slightly less distinctly with two others (D seemed to stress activity of learners and A creativity in particular). C's practices possibly include Davydovian seeds.

### **Problems and challenges**

Appropriation of the concept and phenomenon of orientation was anything but linear and unproblematic in the thinking and in the practices of the teachers. Even the existence of problems could be seen in opposite ways. When asked particularly about them one might say "no problems at all" and another "nothing but problems!". Basically the informants did not mention any major general problems with the concept or phenomenon of orientation itself or related to the learning cycle.

The problems and challenges rather seemed to concentrate in the area of orientation bases and modelling. Modelling in practice involved several problematic issues or challenges such as the external form of the model, formalism and who makes models (students? teachers?). The relationship - or is it even a polarity? - between tangible models and models (only) in

the mind is also a challenging question. With some respondents the models in the mind overcome the tangible ones: The aim was to enhance "a mode of thinking" in the students, but without explicit models. This causes a question whether orientation really requires an explicit model or not. Although tangible models developed by the students were a customary way of working for four teachers only, all the informants underlined students' activity and consciousness in various other ways. This causes one further question to arise: Could the activity be even more enhanced if the students would also make explicit models contributing to the models in the mind?

### **Notions about object and activity theory**

When the student teachers talked about the comprehensive nature of orientation, about deciding on direction, or about looking for the core, they did not very clearly imply towards what they were orientating or what that core would be. In other words, the informants did not discuss the object of orientation (of activity) explicitly, nor its central role - as would be typical of activity theory (e.g., of theories by Leont'ev, Davydov and Engeström).

I was also speculating about whether the respondents were conceiving the object as something else but (large) activity. The examples of their thematic units implicitly pointed to activity: working life was explicitly present in most of them. However, when looking at the tangible orientation models from their teaching practices, activity as object was not that obvious. Pictures or figures sometimes illustrated one sub-area of the activity in question only, not a larger activity (for example, the first models of A's students in Appendix 13).

The possible vagueness as to object (activity) might explain some problems that the informants were experiencing with orientation, such as those of modelling. Some respondents felt insecure with "making just

drawings", with the extent and form of a model, and with the question of whether orientation is sufficient. Could these problems be caused by too opaque a role of the object in the learning process?

Why does the object not appear in a clearer way then? A preliminary variety of explanations can be suggested: The object might look self-evident on the one hand. On the other hand it may be extremely difficult - thus reflecting one of the basic challenges of cultural-historical activity theory - the escaping (and changing nature) of the object. Maybe the role of object is not explicit enough in teacher education? Maybe it is too problematic an issue?

In the interviews there was one question about interpretation of activity theory. Analysis and counting gave this range of answers (see Table 2):

- a) No idea about activity and activity theory (D and H)
- b) No idea about activity and activity theory, but a cautious suggestion about "active students" (E)
- c) "Active students" (A, C, and G)
- d) Activity theory deals with practices of working life (B).

	1st	2nd	3rd
No idea	D H		
Active students	A C G E?		
Working life	B		

*Table 2. Notions of the student teachers about activity theory (in the first round of the study)*

When put crudely, activity theory for the informants means either active students or something that they are not able to define at all. Only one of them related it to the primary "activity" of activity theory. None mentioned the importance of the object. Will this be significant when explaining possible difficulties with orientation?

### **Collaboration at school**

Some student teachers mentioned something about collaboration in school between teachers. Pedagogics seemed not to be a favourite in schools but rather a reason for making jokes. C had collaborated frequently with one particular colleague in connection with the practice enterprise. This had mainly taken the form of discussion. D wished for more collaboration in order to not feel so alone with the new methods she had been trying to put into practice:

(91) "I think I have to take someone along and I don't think it matters which subject, just someone else. But actually I think I have a lot to learn on every level still. I am still uncertain. My luck is that my students know the system now, so they know there is something new to come so they have to think." (D/26Apr94)



## 7.6 THE EXPERIENCED TEACHERS

### Interpretation of orientation

The interpretation of the concepts of orientation and orientation basis by the two experienced teachers of the study was marked by haziness similar to that typical of the student teachers in the beginning. These experienced teachers, F and J, had heard about the concepts in one or two short pedagogical courses, and occasionally also from younger colleagues. However, they had never really learnt them. They now tried to reason through the meaning of the concepts on their own.

F told about her history of orientation:

(92) "I must have somehow, subconsciously, put it into practice already earlier... I have just felt that there should be some kind of an introduction into the theme, a new subject... but I cannot say I have used it knowingly... it has been just by chance... we just picked up a theme whatever it was, and the subject came to the surface little by little." (F/11Nov93)

She completed the first round of the study with firmer statements:

L (93) "How has your relation to orientation changed, let's say from December until now?"

F "Well ... I have been quite aware of it. It's in my mind; you could say that it is in my active mind ... and just this fact that I have tried to tackle it in one way or another."  
(F/2May94)

The summary of F's interpretations of orientation was much the same as the one of the student teachers. For example, she discussed themes related to direction, core idea, entity, and organisation.

(94) "I have thought that it means, in a way, leading the student to a new thematic area, just simply. (...) that the students would start from their own company concept and

then try to see what kind of areas most probably are linked to the thematic area and what is the interrelation between them..." (F/11Nov93)

J said less about orientation, perhaps also because she was not interviewed as frequently as F<sup>1</sup>. J assumed that orientation has something to do with the contradictions the students have when becoming aware of not knowing enough about the topic of a new course or unit (cognitive conflict).

(95) I have imagined that it [the orientation] appears just when they are making their lists [on a new course] what to figure out; they may notice that after all they started it from the wrong end, that they do not immediately grasp that when they start a company that it must have seeds for success. And there it comes, a cognitive conflict, that they first think about the forms of business and about financing. (...) It is, well, I cannot say it properly, but my orientation was the cognitive conflict. That [the students would think that] "Well, maybe there is something more I should know". And that it gives a boost, such as "I see: that's what I want to find out". (J/30Jan94)

Because the two experienced teachers were not quite certain about the basic interpretations, they correspondingly gave few indicators about functions and characteristics of orientation (Figure 20, p. 270, in the summary of the three rounds will display them.) F mentioned properties well in line with the general view of orientation as outlined in Section 7.1 (staying with the core idea, implying the sequence of proceeding, and implying relations and connections in the issue to be handled). It was harder to find connections to the scattered properties mentioned by the student teachers, but there was one, a dimension of orientation as basis for the entire process of learning. This involves a linkage to the property of continuous use:

---

<sup>1</sup>

In the beginning of the study F was interviewed more frequently, because the aim was to make a narrative about her. See methodology, p. 109.

(96) "Now I have started to realise even more clearly that if there is a lack of orientation, or if it is somehow... weak or half way there, it will not reach any heights even later."  
(F/2May94)

### **Orientation bases and modelling**

F told that she had not made any difference between orientation and orientation basis. She wondered, when asked, whether orientation basis might be some kind of tangible underpinning for the things that take place in one's mind. At the end of the first round she was speaking in a firmer tone:

(97) "I have the feeling that earlier I have used them just like that, without even thinking of the difference, but now, I think, orientation is something taking place between your ears. That it is a process, a chain of events, and the orientation basis for me in this phase, is a symbol of..., of something I can see on a transparency, a picture, as words or so..." (F/2May94)

J did not define the concept of orientation basis at all.

Since F and J were not acquainted with the concept of orientation basis, further perception of it was self-evidently thinner than those of the student teachers. F and J had fewer ideas about tangible orientation bases and their nature, and they were - in their opinion - not explicitly modelling either. Yet examples of some tangible types were presented. F spoke about charts and drawings, and, quite obviously, both of them were using examples and cases about practices (about enterprises) as bases of their instruction; one enterprise could provide the context even for an entire course (J).

F had explicitly something to say that relates to modelling. In the beginning of the first round she told about how discussion and key points made an introduction to a course:

(98) "It has very easily stayed on the level of this discussion, with perhaps some key points written on a transparency or on the blackboard. And in time, when we have been discussing these [methods of warehouse control], we have renewed the links into what we discussed earlier [in the beginning]. But it has never worked as a basis, like a model where you start from..." (F/11Nov93)

F, together with her students, had modified chains of key words into more logical lists or sequences at the beginning of the course: "...we, in a way, were looking for the sequence of the planning process" (F/11Nov93), but the lists were not consciously modified later in the process. The teacher only might remind the students about "where we started". (F/2May94)

F raised two points with regard to orientation bases: (1) Some people tend to outline things visually, and for them the graphic models might be useful. (2) Her problem is (in her opinion) that her pictures might easily be rigid boxes and charts which do not fit into real processes:

(99) "Let's say that some people are visually ... they remember more easily, perceive things, see them visually. And if they receive only words on it, they don't get the idea. But I think that in a class one picks up things more easily by ear, another with his eyes, by perception. (...) I tend to put my ideas into boxes...that my pictures are often just boxes...and just process diagrams; that one here, this one there and finally this phase, in this order. And when the process has been perceived, but in real life, there are parallel things taking place, side by side." (F/11Nov93)

### **Orientation and the cycle of learning**

That orientation is present within the entire cycle of learning came up little by little with F, but not with J. In May, when asked in particular, F stated:

F (100) "Somehow I am now thinking it maybe is there all the time..."

- L Hm-mm.
- F That it begins...
- L What do you mean it is there all the time...?
- F Well, you could think that in the actual practice, when you start a new thematic area, and the group is sketching these orientation bases and getting further, then it might be possible to make links to the orientation basis all the time. And then there will arise certain areas which call for sub-orientations. In a way it becomes a process that will come to an end when you make the final summary. (...) you may have a certain basis, a start orientation, but the whole thing is changing, living, on the way towards the summary.  
(F/2May94)

Indicators about linkages to motivation came up both with F and J. However, no signs about linkages to other parts of the cycle did. With J motivation came up strongly in the definition of orientation (Excerpt 95). F bound motivation to several of those dimensions that became visible with the student teachers also: (1) there is motivation within orientation (2) motivation and orientation get mixed, and (3) orientation supports motivation. An example (emphasis by the analyst):

(101) "I think that I am running *motivation* and *orientation* somehow in parallel, *on each other*...somehow I feel it...that I am trying to...that that which I think is orientation is also motivation...that you are provoking *interest in the thematic area* and *you will make them see the whole of it* and that we only later are going to discuss the part areas of it in the actual process..." (F/11Nov93)

## 8) Case (F)

### 8a) Profile of F

F seems to think quite deeply about pedagogical problems. Although she was not formally aware about the theory of orientation, she soon figures out its basic ideas by reasoning it through. She presents quite a variety of aspects about the phenomenon and shows a heightened level of awareness

about its function in instruction. She wonders whether she has been too superficial when introducing courses so far:

(102) "Sometimes orientation for a new thematic area has been quite weak, and it has resulted in many ideas that are important for me having remained vague. I mean what you leave behind, you will meet again. It would thus be worth the trouble. But I have noticed that I tend to rush into things too much. Often when I have been preparing a new thematic area, a larger one, I am in a hurry to get started with it and don't give the orientation the time and depth it would need. And later on I will notice that in a way I am not able to boost the students into discussion if I have not reached a certain stage of depth in orientation."  
(F/30Nov93)

F characteristically also blames herself for various other things, not only impatience and haste: she "does not know anything about pedagogics", she "is teacher-centred", and she feels disappointed when the students do not respond to her ideas. F wonders whether she might get more confidence from new methods, and she also concludes that a teacher ought to have a strong self-confidence. She feels overloaded with work, so there seems to be no time for creating contacts with working life and developing herself.

### **8b) Practices of F**

F was quite eager to learn something new and for this reason she, in a way, became a particular case in the study: I made some deliberate minor interventions in her case. In the first interview (November 1993) I suggested that she might do some experiments with her students herself, which she did. F first asked her students to reflect on the ideas of the first lessons in a new thematic unit. She assumed that she might try something else, too, since she was eager to be pushed to something new by this study.

In the middle of the first round F heard about our experiments at the FBC and got a copy of the report (Torvinen et al., 1992/1994) which she read before the last interview of the first round in May 1994. In this last interview I suggested that she also might read "Orientation in Instruction" by Engeström (1984).

In the beginning of the first round F spoke from the perspective of a teacher, "I have tried to construct orientation for the students" where she normally had been using videofilms, newspaper articles, exercises on how to establish a company, or discussion. Supported by these, the students were to create an understanding about the contents of a new course and its internal relationships.

In the middle of the first round F communicated that this study has influenced her:

(103) "And I have really valued the fact that you contacted me because I feel that I have once more started to think in a new way; that I have started to ask myself new questions. I have got stimulation, impulses from this." (F/27Jan94)

F wondered how to be more learner-centred. At the end of the first round she seemed to be more conscious of orientation. She had put some learner-centred ideas into practice and, at the end of the first round, she had the idea that the students might have even different orientation bases. They could work on them in the learning process at the end of which they all could be linked together in a discussion. A mere opening discussion is not sufficient.

(104) "And you think that you let them, just let them work it out in their own way and you'd consider a final discussion for linking them all together." (F/2May94)

### **Examples from F's practice**

1) The students had previously worked with their own fictional enterprises and now, when the course on *Internationalisation* began, were asked how internationalisation would influence their companies. The students compared their answers in order to formulate a suggestion as to how the company might proceed.

This was done without the teacher's "teaching". The students basically liked these learning tasks and realised the purpose of the teacher, and, in particular, the idea of learning. Nevertheless, they also wondered (disapprovingly) why they were not "taught first and thereafter asked" (Appendix 20 presents a description of some of the learning tasks and a questionnaire).

2) In the spring of 1994, in another class, the process of engaging in business abroad for a company was defined in groups of 2-3 students on the basis of a particular article from a journal. Furthermore, the students were to suggest (1) how to proceed in the process and (2) what kind of goals they would set for their learning in this thematic unit. The students made various graphic presentations (one example presented in Appendix 21).

### **9) Case (J)**

#### **9a) Profile of J**

Orientation does not belong to J's active vocabulary. She is not acquainted with the theoretical ideas of orientation and activity theory. In the first round she gives short answers based on her assumptions ("I do not know, but I am assuming.")



## 9b) Practices of J

In the *Comprehensive Marketing* course the idea of Entrepreneurship permeates the entire course, be it the internal entrepreneurship of any single employee or entrepreneurship in one's own small enterprise. The course plan includes *Eras of the Marketing Concept*. In the beginning of the course the students first pondered how to establish a firm: what kind of enterprise it might be, and what needs to be found out for it. J had the idea of binding, in a reflective manner, the later issues of the course to their "own [imaginary] enterprises". The enterprise was thus a kind of basis, and if compared with the ideas of student teachers, this could be regarded as a kind of orientation basis.

(105) "That [course] is actually looking for two answers. On the one hand you have to deal with the comprehensive marketing of the company, and on the other hand you have to realise how marketing helps the company to succeed.

(...) I think that a company is an entity, after all, and in a business college you are studying these themes on companies under many headlines. We start with them thinking first how they would employ themselves by establishing a company, and what it would be.

(...) Then we come to it, the company should be an entity and the themes are discussed within different subjects. And we come to marketing, the role of marketing in the entity. The idea is that they should always keep the entity, the company and its surroundings in their mind. (...) And whenever you start with a new company, you have the same idea; if you are making a competitor analysis or deciding on a marketing mix, you are always reflecting your own example company." (J/30Jan94)

J has not been particularly dedicated to the presentation of the basic issues of the course, to "orientation". She herself used to present the main topics of the course although they were not - in her opinion - well received (appropriated) by the students. She believes that the basic issues will find their place little by little. She thinks, however, that this

awareness tends to be formed rather late in the course. There was also a written syllabus to guide the students. The presentation was completed by a discussion about their experiences in the marketing and enterprises, and by a video about changes in marketing environment in the 1990s. Altogether, this introduction or orientation took one to two lessons. - Sometimes the students have had the possibility of suggesting issues that ought to be handled.

### **The experienced teachers versus the student teachers**

There was no essential difference in the basic interpretation of the concept of orientation between student teachers and experienced teachers. F seems to have grasped some of the idea of orientation, but J's interpretation remained thin. A major difference became visible in the number of details: The experienced teachers did not have as much to say about orientation and its characteristics or functions as student teachers, a circumstance which also applies to forms of orientation bases and modelling.

In F's case the extent of orientation - as covering the entire learning process - became quite explicit, and there was a transformation to be seen (Excerpt 100). She began to talk quite fluently about orientation within the course of the first round. The close connection between orientation and motivation was presented by both of these experienced teachers.

The problems they recounted were consistent with the ones of the student teachers (for example external form of models and formalism). Topics to be kept in mind with them were also F's thoughts about visually perceptive students (Excerpt 99). Student-centredness seemed to be a challenge of orientation for the two teachers.

J and F were interviewed according to the plan for student teachers, so the topics that were unknown to them probably made them think further. Furthermore, in F's case, the conscious minor interventions by the analyst may have also driven the transformations.

Their notions of activity theory were in line with those of the student teachers. J's notion was "somehow connected to working life", and F bound it to "active students".

F spoke of collaboration and attitude to pedagogics at school. She thought they ought to be discussed more thoroughly. Collaboration is occasional. Pedagogics is often something to joke about; she thought that there was perhaps even an unwritten rule "you mustn't show any interest".

## 8 THE SECOND ROUND OF THE STUDY 1994-1995 "ESTABLISHING"

In the second round the teachers<sup>1</sup> were working in their own schools only. Teacher education was over. The round became a period of establishing. The informants typically stayed with the ideas they had appropriated in the first round. This chapter is mainly an account of new features and differences which arose in the second round when compared with the first round. It aims at avoiding repetition of those issues which appeared to be as they were in the previous round.

### 8.1 THE CONCEPT OF ORIENTATION

The (student) teachers defined the concepts of orientation and orientation basis more concisely now:

(106) "I think that an orientation basis is, in a way, a model, an overall model of the object of activity, describing elements of that activity. I understand that in learning it is, as a matter of fact, the core issue. It is a starting point for proper learning in the student's head, or, a shared model is constructed. In a way it makes the students conscious if they, for example, make a model of that object."  
(C/23Nov94)

In the previous year one of the informants (E) had not had much interest in orientation, and he had doubted it. He now showed a major transformation of getting acquainted with orientation. E defined the phenomenon broadly now (which he had not liked to do in the previous year), and he began to plan and implement thematic units in his teaching

---

<sup>1</sup> Although teacher education was over now and the student teachers were not student teachers any longer, in this thesis they still will be called (student) teachers. This is in order to identify exactly which group of informants the report is referring to. The former student teachers will be kept separate from the two other, more experienced, teacher respondents of this research.

practices. His definition of orientation now revealed the haziness that had been characteristic of the others in the previous year:

(107) "So... well... could it be, or what now comes into my mind, could it be, so what it might be... perhaps... that when planning... so where are we now and where do we want to get to, so would that be about the orientation basis then? And orientation would be more something that will be done...but orientation basis would include more of that starting point, as defined... so it could be something like that. But somehow that teacher education and...yes...how it came up there, somehow it seemed the kind of... I don't know, somehow it did not become [clear?] to me... somehow it remained hazy. There was much talk about it, but somehow it did not come ... so what it is about and where's the beef in it or something (...) Well, after a year things then begin to get clearer or they won't, or they become clear in another way from what it was meant to be." (E/12Dec94)

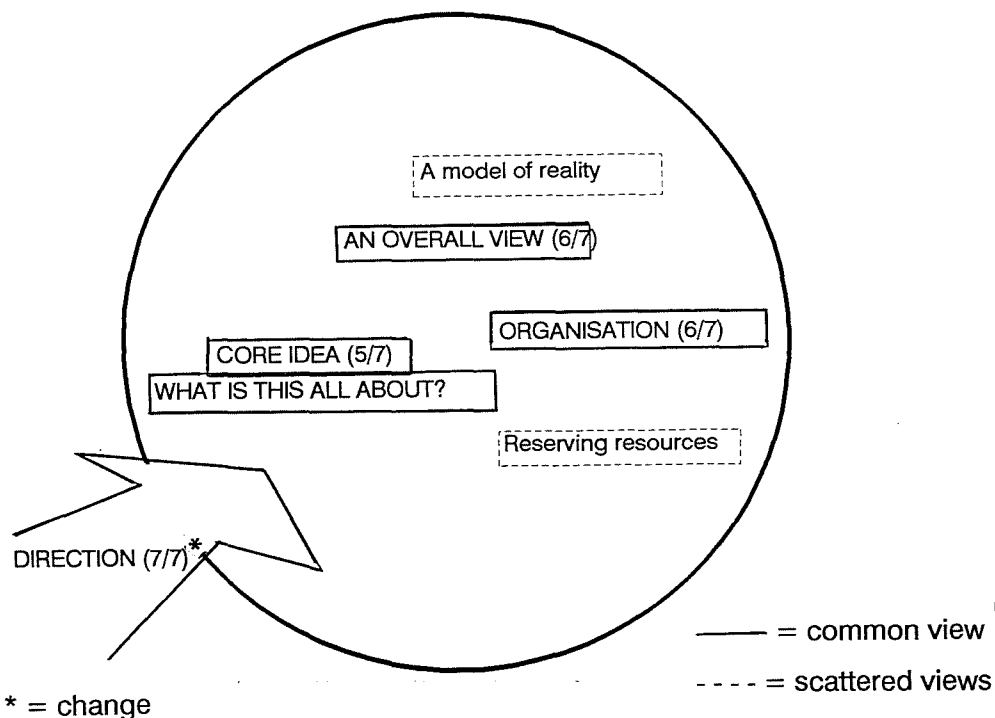


Figure 16. Interpretation of the concept of orientation (2nd round; the (student) teachers)

### Definition of orientation

The definitions of orientation included features pronounced already in the previous year already: direction, focussing, "core idea", entity, and organisation. The property of direction was now mentioned by everyone (see Figure 16). Direction was, for example, visible in the previous excerpt (107) ("where are we now and where do we want to get to") and it appeared clearly with G, too:

(108) "Orientation itself is when you are in the starting point and you start steering towards the thematic area as a whole."  
(G/15Dec94)

### Functions and characteristics of orientation

The scene did not change much: the importance of orientation seemed to be indisputable. Very few new properties and dimensions were emerging (see Figure 17).

#### 1) Effectiveness

Orientation adds to the effectiveness of learning. Since it is linked to systematic and goal-directed activity, it contributes to a *rapid insight to, or overview of*, the totality of the programme, to the *reproduction of issues* later on, and to figuring out *relationships*.

(109) "You are immediately inside the thematic area. You have to spare some time for it but then you are there, and you will understand all the things that have something to do with the whole issue, [orientation] in a way underlines it. And it also underlines it in the way that at some stage you will recall what you have read and learnt over the year, and you see a diagram [before your eyes]. It all comes to you much easier than when you look it up in a syllabus."  
(H/27Jan95)

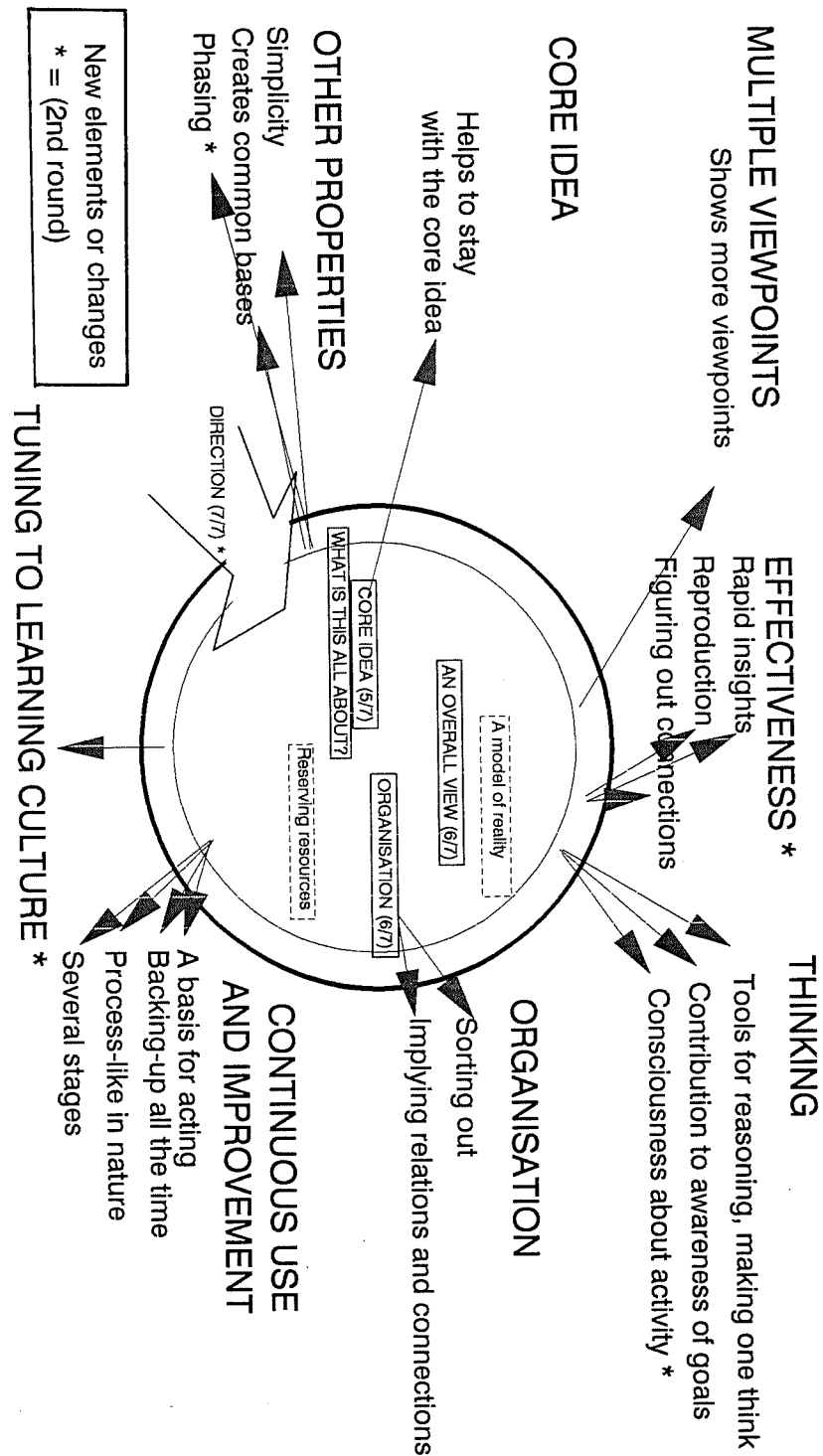


Figure 17. Functions and characteristics of orientation (2nd round; the (student) teachers)



## 2) *Tuning to learning culture*

Orientation is not only attuned to the contents, but also to the learning culture:

(110) "Earlier I had the notion that orientation meant to steer, to concentrate the thoughts of a group of students in the area which they should tackle. But now I have come to think that there is another aspect of it, of tuning the expectations of the students into teaching and learning."  
(B/7Feb95)

## 3) *Thinking: consciousness about activity*

In the property of thinking, the dimension of awareness was now more clearly related to consciousness about activity:

(111) "Orientation makes one conscious about activity. Consciousness about learning and the object is increasing (...) that the student would have an understanding about what will be done, what are the goals, what will be studied and so on. That it would be clear." (C/23Nov94)

## 4) *Other properties: phasing, or supportive or alternative models*

In various stages of the learning process new supportive minor orientation is needed. This was somehow announced by A (Excerpt 45) in the first round, and arose with B and H in the second round (see ahead Excerpt 158)

## 8.2 THE ORIENTATION BASIS AND MODELLING

Signs of new forms (or types) of (tangible) models did not emerge in the second round. The polarities concerning modelling were as explicit as before. Modelling (the making of tangible models) was still a real tool for the same four informants as in the first round, and not that at all for the other three.

### Modelling

#### *Diminishing criticism*

E was not modelling, but he began to think about his criticism of orientation and modelling. He also said that orientation or modelling might be something too "violent":

(112a) "Well, I really do not know, I mean really, I have started to be critical of my own criticism. I have started to question it ... (E/10Apr95)

(112b) ... and my criticism is pointed at the fact that models do not somehow fit, not as they were taken up in teacher education. It seems too violent..." (E/10Apr95)

#### *Modelling became a powerful tool*

For C, the vitality of modelling was increasing.

(113) "... I have noticed that in other, traditional lessons [he was mainly running "practice enterprises"] I am also willing to model ideas immediately and urging the students to model and make models. It is a tool, I have to admit." (C/23Nov94)

*Towards less models*

A aimed at a smaller number of models than in the previous year, but the models were to cover a larger area. Having too many models hide the basic ideas:

(114) "When I think of last year, maybe I had too many models. (...) The core idea is beginning to drown if I have a huge amount of models, drawings and charts; the students are not necessarily able to see what the most important idea is, what they should learn from it." (A/22Nov94)

**Problems and doubts about modelling**

Problems and doubts about orientation bases and modelling basically dealt with the same properties as in the first round. Few new dimensions came up:

*1a) Students' perspective: independent working*

Students ought to be allowed to work undisturbed. They need space for modelling. The teacher's model should not prevent their thinking.

(115) "And then one thing I have tried to do: to keep my fingers off it, not to touch their model." (A/22Nov94)

*1b) Students' perspective: individualism*

As an additional, more or less related, dimension to individualism (in Section 7.2) E adds the possible inflexibility of models, and mentions that orientation models are different for different people. Someone could guide them to the "tracks" but still allow them the liberty of their views:

(116) "Do the models fit in when you want to be an explorer, not a tourist? [The models do not fit everywhere, e.g. into ideas with various ways of thinking.]" (E/12Dec94)

### 8.3 ORIENTATION AND THE CYCLE (OR SPIRAL) OF LEARNING

#### Orientation in the entire learning cycle

During the second round of the study additional signs (by G, for example) about the link between orientation and the entire learning cycle appeared: orientation goes on throughout the entire cycle. A new problem emerged: *orientation does not support the process well enough*. It came up with two informants; one of whom also thought of an explanation:

(117) "Maybe it was due to the fact that we spent a long time with it last year, discussed the orientation phase quite a lot, because we felt like it. And when you work with it in your own work and the idea in a way gets deeper and deeper..." (D/30Nov94)

(118) "And you need to get continuous support for your teaching from orientation, I clearly sensed it now that we had a good start and orientation was enough for some time. But now it has died out. Now I'd need something new - and I don't have it." (B/7Feb95)

#### Motivation and orientation

The linkage between orientation and motivation appeared strongly in the first round, so I asked all the respondents about it in the second round. Because of this, all of them to some extent addressed the issue, but the connection did not necessarily appear any stronger:

(119) "This connection between motivation and orientation, I have not underlined it so much but they have something to do with each other, (...) I do not know how much it affects orientation but of course it affects the willingness to learn if they have some use in the future. But I really cannot say how it is, what the connection could be." (H/27Jan95)

Few new nuances about the linkage were unfolding. Some concern about motivation could be detected: It may be overshadowed by orientation:

(120) "But I think they move very easily so that the motivation is left unattended, totally, and you just start looking at details; what this is, what kind of connections it has and what is done there. I feel you put your stakes just there where you are and where you are going. It receives all the attention. I have not thought of it earlier but when I am talking about it aloud, I am wondering if the motivation is left too much in the background." (D/30Nov94)

*Orientation supports motivation: it shows a comprehensive view*

This property got a new dimension: Orientation, supported by modelling, gives an overall view. Motivation and commitment are enhanced by an understanding of the parts and the whole.

(121) "If the students notice that you are able to develop and widen this model all the time, [that they] can understand the idea behind it, that is really valuable. That they for example start to look at part areas (...) When you start putting them together or describing the activity, they notice that their own work is part of a larger model, and putting the pieces together makes it easier to see the whole and increases the motivation. (...) If the motivation fails, you cannot understand the whole, the parts or details seem loose and the motivation decreases." (C/23Nov94)

### **Evaluation and orientation**

During the first round, evaluation, as connected to orientation, was mentioned by a few only, and only briefly. Now it came up more distinctively. Four of the seven informants approached this issue. The property which could be discerned was the same as in the first round,

*Orientation supports evaluation.* Now it was extended by one more dimension: *Orientation (basis) supports continuing evaluation:*

(122) "You could think of the orientation basis also as an evaluation. You evaluate how the orientation basis has been developing and, as a matter of fact, it is a familiar concept for them and ... it has been expanding all the time. (...) I also think that the orientation basis is [inaudible] everywhere, developing all the time." (G/15Dec94)

## 8.4 INDIVIDUAL CASES AND PRACTICES OF ORIENTATION

### 1) Case (A)

#### 1a) Profile of A

(123) "What is problematic? Really... (laughs), one could ask if there is something here that isn't problematic!"  
(A/22Nov94)

A's problem is still modelling. She asks herself: How can you make orientation (modelling) a real tool for working life?" She would like to move towards more uncomplicated models, and to a smaller number of models. ("Last year there were too many models.") Students ought to model, and she thinks that she is moving towards larger units herself. ("The model ought to cover a larger cycle.") In her own opinion, her development in modelling has gone like this during the year: At first she had been thinking about what a model should look like. Then she began to ask whether a model is needed, and if so what kind of model. Afterwards she began to question whether models are used too extensively and whether the students themselves should do the modelling rather than the teacher. Now she was wondering how the model helps students in grasping the substance.

#### 1a) Practices of A

The students who had attended A's course on *Organisation and Leadership* indicated in their interviews (16-17 November 95) how modelling and organising of the contents had taken place in the course. Even during the interviews they briefly modelled some aspects of the idea of the course (an example in Appendix 22). Models of the students had been also put together.

Another class made some (real) research for two theatres about the purchasing behaviour of the theatre-goers. The students were to make an

assumption (in the form of a model) about factors influencing the buying behaviour. After this they were to carry out the research and to present their results to representatives of the theatres. A tells about the phase of modelling (the model itself is presented in Appendix 23):

(124) "First of all I held a sort of lecture where I told them what kind of models currently exist. I gave them all I had and then said that while we are starting this work they have to think which of these models fit into their research theme. And if none of the models fits, they think, they have to work out a model of their own. And that all the time they have to keep in mind what the aim of their research is.

And then they split up into groups. And they started to remodel. They had ideas in both groups, and they did not want me to be around but wanted to do the work by themselves. And they made a so-called model of their own and justified it by saying none of the models fit into this theme.(...)

They all sat together and then started to make their own model, the last version; and they had a fight over what to include and what to exclude. And I remember that at the end of the lesson the atmosphere was not really friendly. Because some had to give up their ideas and some others thought irrelevant matters were included and ..." (A/13Feb95)

## 2) Case (B)

### 2a) Profile of B

B has changed his school and domicile. Because of that he has not been able to work with the development of instruction. In the first round B had planned that students would make models, but this did not take place in the second round. He now has new ideas in mind about orientation: Orientation also deals with learning cultures as it guides into learning practices. He feels, however, unsatisfied in this area because he has not been able to put this into practice.

(125) "I feel now that I have not been able to take up that point with them really. I mean, what I am going to teach,



how they are meant to study, and what I expect from them. Thus they do not have a measuring stick to scale up this entity." (B/7Feb95)

B has now also experienced that orientation is not sufficient when moving into new part areas of a thematic unit. He wonders whether this could be supported by "orienting spots":

(126) "It just occurred to me that every time when you start something new you should actually tune it up with an orienting spot like this. Isn't that right?" (B/7Feb95)

## **2b) Practices of B**

One innovation of the year was collaboration with a local laundry in matters of accounting. At the time of the interview this development was being planned only. B kept using cases and examples of real working life. He stressed the understanding of the whole, and the importance of enhancing one's way of thinking.

(127) "I am using an example of a fictitious home PC shop which ... I give them a form with some key numbers relating to it. They make the profit and loss calculation and see that the company is badly in the red. Then I ask them what should be done in this company, what they could do, in order to be not unprofitable.

They are quite open to start with, everything between heaven and earth is possible. They think of the activity in pairs, they design their own reorganising ideas. Then all together we discuss how realistic their choices are, and they seem to stick to the idea of decreasing fixed costs. I do my best to widen their views; it's not only fixed costs, you have to think of the whole. And there comes also the idea that in the real world, you do not have a magic button to push but you have very many things which impact ... when you touch this and a little bit of that, you get a noticeable effect." (B/7Feb95)

In a questionnaire made by myself, B's students signalled overall and goal-minded thinking. On the other hand, quite a few of them expected the teacher to play the main role in instruction: he is the one to produce the ideas, not the students. This was a weakness that B had sensed and pronounced on, too. In their answers his students listed issues that they considered important in outlining the syllabus of a new course, or in learning in general:

- contents
- the goal and purpose of the course (these must be vital for working life)
- linkages between small and big issues
- some kind of a chart about the course is needed
- linkage to practice
- the teacher needs to tell these(!) and to give a clear overall view
- understanding why something is going to be learnt
- the teacher needs to help the students to find the main thread

### **3) Case (C)**

#### **3a) Profile of C**

Comprehensive thinking and thinking of the object are quite dominant features of C and are even more emphasised than before. Learning theory is a living and changing issue for him, and working life is the starting point to him in his planning of teaching and learning. Modelling is continuously and strongly included (see Excerpts 106 and 113), and C stresses its connection to motivation and evaluation. He is pondering and reading about pedagogics and activity theory.

(128) "Maybe in underlining the object of activities, just like in emphasising life orientation, it is very important to see the object of activity, to show where it is pointed, to know and understand the phenomenon that is taking place. And all in all, I feel, when talking about this orientation, that it is not done and finished but it is continuously growing, just like

the concept of learning, you get new thoughts on it all the time...

(...) Um-m, I don't know, it has just somehow found its place. For example, last winter I had not internalised it really, that it gets very much started with the event itself, like payroll calculation or something. In a way the planning of all learning activities should start just there, from the event itself, in this case from the work of a graduate of a business college in payroll calculation." (C/23Nov94)

### 3b) Practices of C

The way of proceeding is much the same as in the previous year. In the practice enterprise of the school, models and their modifications have been emphasised. Students have the main role in modelling. Models created by the students in the beginning of a thematic unit, and how they were modified later in the process, are presented in Appendix 24. A comprehensive model from a somewhat later phase is presented in Appendix 25.

(129)

C "Here the situation is quite identical to last year. It started almost the same way, for example, sketching a total model of activity of a company before any particular discussion, the model was just made in the very beginning..."

L "How was it made? Did you make it, or the students?"

C "The students made it all themselves. And it happened so that I described to them how you can make the model just like an example - but the students simply were leading the making and the forming of the ideas of the model."  
(C/23Nov94)

A SWOT-analysis by the students indicated their basic satisfaction with this way of working. In a discussion with ten students (23Nov94) I was able to concentrate better on their thoughts of the notion of orientation. We were talking about the creation of the models - how and why they are

made. We also discussed the meaning of collaboration. The students told of the process of putting the models together. The answers imply collaborative, dynamic and multilevel modelling:

- 1 (130) "We brought up a model of our own in our sessions; we looked at it and discussed it."
- 2 (131) "We compared them in pairs, and they started changing; and then we had a closer look at them and they were changing again."
- 3 (132) "The teacher had the idea that he would see what we are thinking individually of what a company consists of. Then we picked up the best parts of it and put them together."
- 4 (133) "First we made a bigger picture, then started to cut it into detailed models to to see what is happening in the smaller units."

The answers about reasons for modelling imply the importance of figuring out the whole, but also the connection between parts and the whole. The students even mentioned (Example 3) that modelling motivates:

- 1 (134) "...that which is taking place in any one point of the model; what happens in finances, what happens in production, and how these work together. For example, yesterday we went through the process of a tender from seller to customer."
- 2 (135) "All of us surely have a kind of all-round education behind us; everyone knows that we have production, we have buying, all kinds of general areas, but by modelling we aim to find certain spots there; tiny little points which cannot be seen in the big area. That there are tiny little boxes appearing all the time and we are developing that level even further."
- 3 (136) "It is also good for the company if this kind of diagram can be found in every department. It gives sort of certainty to the staff. I am an important part of the company. And if one part is cut off, we shall see that the company does not work so well anymore. This chart motivates."

About the methods of modelling and its meaning, the students presented the following opinions, which included also critical ones:

(137) "Making a model of activity; everyone does it separately. There's no sense in making it separately, you are stuck with your own ideas."

(138) "You should not think of the whole or you lose your head."

(139) "It is not good when you are making a part area only [as they had been doing so far], you will not learn the areas the others are working with."

(140) "This is a good system for active students, for the passive ones it is risky. They would need directions from the teacher."

#### **4) Case (D)**

##### **4a) Profile of D**

D's method has still been making drawings about whole units, although she keeps doubting her skills:

(141) "And further on, I feel it the way I must have felt already in spring: I have never been able to think with pictures. I cannot draw things. It is a problem every now and then. And then I think how I shall describe this process, and I start in a very simple way (...) my world is what Seppo Peisa says about studying for an exam: it's good to have many pictures, there's less to study. (laughs) You can just leave those parts... That is disturbing me a little bit."  
(D/30Nov94)

She feels that orientation is not enough. She also feels encouraged to give more opportunities to the students, so she is not keeping everything with herself. Yet she always has been in favour of a democratic relationship with her students. Collaboration with the students has diminished these feelings of being concerned, and she has also found means to manage the situations which arise. D also would like to

collaborate with her colleagues, one of whom has been willing to take up drawing (making models). She would also like to discuss with someone more experienced in orientation and pedagogics, someone who could assist her in her development. Every now and then she has returned to the literature of teacher education.

(142) "One day we took Miettinen's book and had a look at the basic diagram with the MOSUAK model<sup>1</sup> and went through it [with colleagues] and such. And really, every time I have taken it up and started to discuss it, I have noticed something new: I see, that's the way... and is that the connection? (laughter) and this proves the picture is changing all the time..." (D/30Nov94)

#### 4b) Practices of D

D and the students were drawing pictures and modifying them. The teacher briefly presented the theme of a unit at first and they discussed it. The figures used to change during the course. The teacher was guiding the process of modification.

(143) "...during the course we were kneading these things all the time, discussing, wondering what this is and what its connection is, and how come these things in a way are messed up with each other. And then, during the last meeting, and this picture was also mine, but anyway, I made a new one and told them I now have started to think in a new way. Part of them at least agreed, and I think this gives a better idea of the situation." (D/30Nov94)

In another course both the students and the teacher were making figures (two spontaneous orientation bases appear in Appendix 27, one by a student and one by the teacher).

D's students told me in the interviews that these pictures had contributed to a better understanding. Some of them quite spontaneously mentioned the difference between the figure from the beginning and the one from the end, and the development within them. The students stressed interactivity and intensive thinking in their comments. Some of them experienced drawing as being also painful:

(144) "It needs time. And if one does not have background knowledge, drawing is problematic and painful. On the other hand, the overall view is easier to figure out this way."  
(D's student/30Nov94)

## 5) Case (E)

### 5a) Profile of E

E begins to think about orientation and thematic units. Similar stages of hesitation and questioning can now be identified with him as with the others in the previous year. E defines orientation more thoroughly now, and he also wonders how it should be implemented. As to the concept of orientation, the property of direction comes up in his definitions now, and he gives a thought to models. In the first round he had emphasised motivation, and he does so now again.

(145) "Orientation ... well, I have maybe changed my views a little, or I have started to see it more like an outline, like a choice. To me it seems you are marking out, defining what you are going to leave. In general, I think, plans are made by defining what choices to leave out..." (E/12Dec94)

(146) "And if the students are motivated, my task is to steer the motivation a little and help it hit the right spot. But if there is no motivation or very little of it, or if it is aimed at external factors like reaching a diploma or some other thing, it is a much more difficult thing, because then the orientation is not the main attraction but rather, how to create the motivation. Or if the motivation does not exist, does the orientation really matter either, that's the connection or how I feel it..." (E/12Dec94)

E stresses the students' should be proactive, but the means for this are not quite clear. He participates in a project of working life with colleagues and the students. He feels as if he was experimenting in it:

(147) "Well, I am here, in the middle of a learning process, it feels it rather exciting, don't know what will come out of it, if anything, but surely there is some result when you see what went wrong..." (E/12Dec94)

### 5b) Practices of E

E is aiming at new kinds of learning tasks that would orientate the students to a new thematic unit. A learning task (in Appendix 26) made the students analyse individual independence, freedom, and responsibility. E has connected these to the management of human resources and to questions of working life. The material was taken from contemporary articles and from philosophy. This kind of learning tasks means a new challenge:

(148) "But when you start this way, and to do something new at the same time, it gives you a challenge. I used to start teaching Personnel Management just like any old lesson; what management is, what the personnel management and personnel are, what details we've got, such as hiring and salaries etcetera. Somehow I have now not been sure whether it's really what it should be [he decided on a new kind of learning tasks then], but decided it's one of the ideas to discuss. When you have a routine way of doing it, maybe it's not so bad after all, especially as you can't think of anything else, to do it [in a new way]..." (E/12Dec94)

E was participating in a project of working life and this learning task was meant to support that project. A section in the local municipal social and health centre had contacted the school and suggested that the students should implement a study on the quality of administration in the centre. Two to three teachers collaborated in this project with the students were



carrying the main responsibility. In the beginning they all - both the teachers and the students - seemed to be quite unaware of the prospects for the project. However this was meant to be like as it was a new kind of situation. The students made contact with the centre and implemented the project.

(149) [In the beginning of the project] "... I did not have a clear idea of it, maybe it was a good example of, let's say, a new or confusing situation..." (E/12Dec94)

(150) [When the process was running:] "There it started and the students took care of it. Since then I have not heard very much of it ... the students had designed a form to start with and they had a sort of manuscript of it, and I was evaluating or commenting, a few general ideas of research or so..." (E/10Apr95)

In my interviews, E's students later told how uncertain they were in the beginning. This made them laugh almost hysterically even in the interview, so the situation really seemed to have been new to them. The students informed me that they are used to traditional teaching:

(151) "(laughing) you go to the lesson and take a pen, that's all. Then comes the exam and you wonder a little bit what the topic of the exam really was." - "Normally you do not know what the entirety is all about, there are small things only. Then in the exam you ought to be thinking..." (E's students/12Dec94)

When the project was almost completed, I had a discussion with one of the students:

(152)

L "You think this is all right?"

Student "Of course it is! You become seasoned. The theme could have been more distinct, I missed some more instructions."

L "Seasoned?"

- Student "You are learning new things, to find them out, independently."
- L "What have you learnt to find out?"
- Student "The system of this branch. I have got some life experience which I cannot sort out clearly. But when you act independently, you learn a lot." (10Apr95)

## 6) Case (G)

### 6a) Profile of G

With G things seem to run as earlier: students' activity and working life are highlighted. He keeps telling about a complete learning process as a challenge. He also tells how he is looking "for his place" all the time.

(153) "You will surely see it, when you are going through my thoughts, you will see that I am looking for my place all the time (...) Pedagogically and didactically I started with an empty desk in summer 1993, and I have learnt a lot during this time..." (G/15Dec94)

He now explains that orientation basis is bound to the process of evaluation and the entire learning process (Excerpt 122).

(154) "When I first got inspired by this orientation basis, I was not at all interested in evaluation, and these have been, in a way, my first steps in evaluation. It was then that I realised it, not too early, that the orientation basis has got a lot to do with the whole of our learning process, that you can see the development reflected in it." (G/15Dec94)

### 6b) Practices of G

G's students get a syllabus for the entire schoolyear right at the start. They make learning contracts with their teacher. G has been testing their

self-directedness in particular. He has produced some introductory material for the thematic unit of *Corporate Taxation*. He says that it is "his orientation to that unit". After this introduction he tries to conduct a general overview for that unit, to illustrate its unclear points and to lead the students to the core principles to which orientation must be linked.

G's students spoke of these very aspects in the interviews (24Jan95). The teacher had asked questions about their expectations and wishes. The students considered the syllabus for the whole year a good thing, since it spells out the goals of the teacher. After receiving the syllabus the students could, and they also were supposed to, write down goals of their own, which the teacher then commented in writing. The students recounted: "When you think about your own goals, you need to think what the whole thing is all about."

## **7) Case (H)**

### **7a) Profile of H**

H underlines that she believes in orientation, and in the students' own orientation bases in particular.

(155) "My relation to orientation in general has changed in the way that I have more faith in it and that I believe it is important, especially in courses I have conducted: short courses and courses full of ideas totally new to many. (...) I have more and more faith in the student's own orientation and that he or she starts sketching it himself, perceiving the whole..." (H/27Jan95)

H stresses that orientation cannot be learnt by reading, it must be experienced (the teacher must follow the process in reality).

(156) "This [orientation] was the best thing that happened to me in teacher education, and it really is something that I also have told my colleagues about..."

[Some of the colleagues knew about the idea already and they had been using it. Someone had only heard about it, but he wanted to learn more:]

"... as far as I remember ... I said to him that I could show how it works, but then we forgot ..." (H/27Jan96)

### 7b) Practices of H

H's situation is mainly the same as in the first round. She tells that she has not had any particular problems with orientation. A growing feature has been her using an orientation basis for checking at the end of a thematic unit, as a kind of evaluation or control. The model is not deliberately modified during the process of learning, it is more like an organiser. They systematically keep an eye on it during the learning process, and return to it at the end.

(157)

H "The orientation basis has been more like a summary (...) in general, I have used the first sketch of basis even at the end of the part, like this: "We have now discussed this and that, can you see now how they are related and how they effect each other?" (...) We come back to it knowingly, either half way around or as a summary at the end of the course. They see it once more, what we have achieved in 20 or 15 lessons..."

L "You mean that you show the tangible results for them?"

H "Yes, that's it, and surely I wasn't doing this knowingly last year... " (H/27Jan95)

H mentions the same issue as A did in the first round: the major and the minor orientations:

(158) "When you think of a whole area like International Finance and Payments, in a way it is so unbelievably wide and you need a number of minor orientations; this is what I am using at that stage, minor orientations when you start with the part areas..." (H/27Jan95)

These practices, which were meant to encourage the initiative of the students, may entail a challenge for both the teacher and the students. In Chapter 10, Students' Space, H comments on that challenge (Excerpt 236).

### 8.5 REMARKS ABOUT THE SECOND ROUND

The teachers seemed to be content with their interpretations of orientation: In the interviews they did not pay as much attention to the definitions as before. "Direction" was now implied by all of them. Orientation as a tool was being established, which some of them clearly expressed. In all opinions but one, orientation now covered the entire learning cycle. The informants seemed to have been faithful to the other ideas and emphases characteristic of the first round (see Figures 16 and 17 and the summary in Appendix 32). There was only one major exception, E's transformation. He began to appropriate orientation as a tool.

Only few new properties or dimensions were emerging. Effectiveness of learning, and orientation as an underpinning of learning cultures (learning practices), came up as functions of orientation. Modelling was being strengthened and crystallised with those who practiced it, but there still was the polarity between external and internal models, as well as the same doubts concerning inflexibility of orientation ("too systematic", "not individualistic"). Practically every teacher favoured the active role of the learners (as makers of the models, for example) just as they had done in the first round. The linkages between motivation and orientation seemed at least as firm as before, with some additional nuances emerging. The role of orientation as a support for evaluation now appeared more distinctively.

#### **Transformations and other findings**

Although common transformations were rare, experiences of modification, though mainly minor, were typical of individual cases.

- 1) E became interested in orientation and began to doubt his previous criticism. He was now asking "how one can orientate?". This change might be caused by his deeply felt regard for the central role of learners in

instruction, which he had expressed implicitly in the first round by talking about the joy of learning. In this round he began to stress the students' role by assigning more learner-centred tasks, and, in particular, by participating with the students and a few teachers in the large working life project. In the project the students had to find their way towards an object of working life. Furthermore, participating in this study of mine may have influenced him. In the first round he had expressed his trust in it (Excerpt 79).

2) B's idea (Excerpt 126) about orienting spots (or phasing in orientation) may have a seed of development embedded in it. It involves perhaps the issue of (at least partial) reorientation and a notion about the need for several alternative or mutually supportive models. This idea was presented also by H (Excerpt 158) and (in the first round) with A (Excerpt 45).

3) With C modelling has developed a stronger role. He has become more interested in theories of learning and has further investigated activity theory. C has begun to talk distinctively about the object of activity.

In addition to these individual experiences, there is one more common finding to be seen: Those three informants who have not been using tangible models (B, E and G), seem to aim at developing a way of thinking (a model in the learners'minds). This was made obvious in the previous round by B and G. Now E also indicated signs of that: the students' independent work in the project requires ideas of a "working life" way of thinking.

### **Problems and challenges**

The informants had experienced some new problems, for example the notion that orientation is not enough. Orientation covers, or ought to cover, the entire learning process, but now some informants experienced

that it loses its efficiency soon after initiation. Modelling is another challenging issue; it needs space.

I could discern the following problems or challenges myself:

1) The students were not necessarily committed to the new ways of working (with orientation). Contradictory aspects appeared in several of the students' opinions. The teacher was in favour of a certain idea, but the students did not always share that view. H met with some reluctance when the students had to use a method based on initiative work. B's students expected activity on the part of the teacher and not so much from themselves. Some of C's students (Excerpts 137-140) denoted critical points in modelling. A's students made a row (Excerpt 124) when working on aggregating their individual models. D's students did not all support her method of drawing (Excerpt 144). Most probably, every teacher experienced difficulties such as these. Nevertheless, the teachers persisted and did not give up trying.

2) Modelling is not unproblematic. A keeps fighting with models. With C, models (the ones of the students) are becoming more and more complicated. Is this a risky aspect within the Davydovian method of working? How can germ-cells be identified?

### **Object**

The area of object and activity still appeared opaque. Activity and linkages to working life became visible with some respondents ("a link to one's future in working life", "motivation comes from real working life", "one should understand what is needed in working life"). All the informants seemed to be in charge of large activities implicitly, but they did not treat activity as a distinctive object - with one exception:

(159) "For example, the object of activity is the start of everything. Activity is the basis. It is a lot easier to form an idea and learn about it, from activity, than to teach with a



loose example or a task. The learning process is connected, at least in business teaching, to real activity that the students will meet at work." (C/23Nov94)

Now analysis of the interpretation of activity theory gave the following results:

- a) "Students are active" (E and G, see Excerpt 160).
- b) No explicit idea about activity or activity theory, but a cautious suggestion about thinking or reasoning on one's (D and H, see Excerpt 161.)
- c) Learning cycle (A, see Excerpt 162).
- d) Activity theory deals with practices in working life (B and C, see Excerpt 159.)

(160) "... somehow you should learn by doing or acting and finding out things. You could e.g. teach by giving the students a series of learning tasks or so, or the studies might progress via various stages of learning; this is how I have thought it would be best to learn. And I really do not know, or cannot think of, more of it (...) and, most probably, also that activity theory can mean something that people are doing large numbers of things and that kind of thing."  
(E/12Dec94)

(161) "I don't really ... I must have said it earlier, and even now I do not know really ... I think it works somehow by the brain system, the whole of it. That it is going further if I understand it myself. It's useless for me to talk about or do anything if I do not know myself what I am doing."  
(D/30Nov94)

(162) [Defining with a metaphor that sounds like Engeström's learning cycle:] "Sometimes I think of activity theory and I remember the state of fermentation I experienced during my own studies. It really reminded me of making home wine. This morning I was thinking that it really is the same as making wine at home. That you first have a motive to do something. Then you have to have know [inaudible]; you have to find out what it is and how it is made, what ingredients are needed. And then you have to internalise the whole idea, let's say that if you study the model, you also have to understand it. Then you begin to

externalise, and in principle, when the wine has been bottled up and ready, you have to evaluate your work. How is the product, what went wrong, and if it doesn't start to ferment, why not. It has a lot of the same as the wine making."  
(A/22Nov94)

	1st	2nd	3rd
No idea	D H		
Active students	A C G E?	G E	
Working life	B	B C	
"Reasoning"		D H	
Learning cycle		A	

*Table 3. Notions of the (student) teachers about activity theory (in the second round of the study)*

A clearer idea about activity theory is emerging, yet the overview is diffuse (see also Table 3). The move is perhaps towards notions that include active students, learning activity and (as object) practices.

### **Collaboration at school**

Collaboration in schools between colleagues may contribute to solving problems and to discerning new opportunities. The second round revealed some indications of this issue. Some of the informants were doing it, some were hoping for it, and some just mentioned it. In the second round collaboration came up in four properties:

- 1) *Telling colleagues about one's own experiences*: H told her colleagues (Excerpt 156) about her satisfaction with discovering the idea of orientation. Some of the colleagues shared her experiences whereas some were not further interested in the idea.

2) *Participating in common projects with colleagues*: E took part in a collaborative project with students and teachers working together.

3) *Assisting colleagues in learning about orientation*: D experienced the willingness of a colleague to engage in learning about orientation with her. This was a relief:

(163) "So I really have thought that if I want to go on, what shall I do. Now when X is willing [to collaborate] I am quite positive that things will be fine. I have presented Miettinen for them with joy... This has been important to me." (D/30Nov94)

4) *Differences between schools: different possibilities*: B, who moved from one school to another, experienced the new school as being more receptive than his old school in appropriating new ideas and collaborating. Collaboration requires "a critical mass":

(164) "When the critical mass is large enough and is supported, then it will go further. Then it is fun to work. But if there is no basis for growth then you only ask yourself what the hell am I working here for, I'm not even paid for this, my work is to teach my lessons. And the development stops there." (B/7Feb95)

## 8.6 THE EXPERIENCED TEACHERS

### Orientation and its functions

J's and F's interpretations of orientation did not change compared to the previous round (see Figure 20 in Section 9.7). They presented some new functions of orientation which were partly in accordance with the ones of the (student) teachers and which partly were not.

*Effectiveness: Orientation makes the work easier and more vigorous*

(165) "Orientation is a tool for thinking, I suppose, and it essentially helps working. So you need not collect all kinds of undetermined stuff, but you have a framework. I think this is what it is all about, it helps and makes things vigorous." (J/30Mar95)

*Thinking: Orientation is a tool of thinking:*

(See the previous excerpt.)

*A tool for managing things, even one's life:*

Orientation contributes to a way of thinking which helps in managing new things. It is a tool for managing one's environment, even for managing one's life. In the long run it might be such a tool for vocational education that will later help the students to manage various situations of working life.

(166) [Where does one orientate towards in orientation? Towards] Managing new things and one's working environment, attaining security and confidence. It is a tool for constructing confidence that one is able to manage various situations. If you learn to take advantage of it, you can manage situations better, you are not that lost. (...) Of course it is only managing one thematic area, but in the long run it might be a tool that helps the students in managing

quite different situations of working life (..) and one's life even, when you learn to use it." (F/9Dec94)

### *Continuous use*

Success in orientation has cumulative effects: it enhances the ability to orientate.

(167) "As you get stronger and more successful in orientation, you'll learn orientation better." (F/9Dec94)

### *Other properties*

Orientation contributes to learning and *change*:

- L (168) Why did you say that you consider orientation more and more important?
- J I think it has come to the fact that I now have been thinking about how a human being learns.
- L How do you conceive of learning?
- J Learning is to be changing.
- L And you think that that is needed in orientation?
- J Yes, because it will not happen if you have not thought about it and become receptive. That one can change and there are good reasons for changing. That one can notice it in oneself. Your appetite is growing. You notice that you see the world in a different way. I would like this to happen. Opening one's eyes, a huge desire to learn more. No stopping and stagnation." (J/30Mar95)

### **Orientation basis and modelling**

F, though saying that she does not know the difference between orientation and orientation basis, now explained orientation as a process

where you first construct an orientation basis and where it is being refined.

(169) "I think that once upon a time when we were talking about these things for the first time, about orientation and orientation basis, I was probably not able to make any difference between them, they were synonymous to me. Now I have got a feeling that orientation, one might say, is a kind of process, a process of activity. But orientation basis, it is the end result of this process, a figure for example, that can be put on the table and examined under a spy glass. Orientation would be the process of constructing an orientation basis.

(...) One could say that the orientation basis is being refined during the process of orientation. When you begin with a new thematic area, it is quite rough, or should I say not mature or ripe. But then, if the students go on using the orientation basis alongside the process, one piece of it at a time, then they would have a "perfect figure" [at the end]."  
(F/9Dec94)

She also presented ideas for different forms or types of orientation bases: it might be a figure or a picture, a mind-map, or even a small play.

(170) "Now I am quite fond of the idea of a picture, to get rid of lists and such ... Why couldn't they be small plays even ... perhaps this would need some training and a group of people of certain characteristics. In some evening groups they really seriously toil with their work and if you try to take some drama there, they might say what the hell is this playing games. And, if you are lucky, with another group it might be a success. It depends on the group. (...) I think I'm that bound to transparencies, why not use some mind-map or figure..." (F/29Dec94)

J was also of the opinion that she does not know what orientation basis is, but she reasoned that it might be any basis upon which "everything is being built" ("a stone base"). Only imagination sets limits to what forms and types it could be.

(171) "I think it is the word, "the basis", that it is the basis to construct upon. I conceive it visually, a house on a stone base. And, related to that, there are the supporting pillars, too. If there is no basis to build upon, well, it's weak, I say." (J/30Mar95)

### **Orientation and the cycle of learning**

In the previous round already, F was assuming that orientation is not only present in the beginning of a learning process (as she said she used to think before), but that it extends to a larger area. Now she was confirming that all learning is orientation. The initial set-up turns alive, it is adjusted and supplemented, and one moves from orientation to orientation.

(172) "How come I feel that until now I have thought about it as related to the beginning of a certain learning process or thematic area, and that there may exist such smaller orientations. But then I began to think whether one in fact could say that the entire learning is orientation. You gradually outline more or less major entities when you get more acquainted. My idea has been, even last winter, still, when I began to think about these issues, that there is just one phase of orientation clearly, a kind of separate story based upon which one then begins to proceed. And then other phases will come and so on. But now I think it is from orientation to orientation, and meanwhile one is just supplementing orientation. (...) In a way that orientation begins to live after the start."(F/9Dec94)

Also J was now of the opinion that orientation extends to the entire unit or learning process. Orientation carries basic questions through the process thus tuning it in its entirety. It is a carrying force, and its absence is difficult to replace. Orientation considers all the topics needed in the unit.

L (173) How do you explain what orientation is?

J I'll answer in another way. Now when I was preparing for this interview today and was taking a shower and washing

my hair I was thinking an analogy of going to a rock concert ... there are those warm-up bands first...

L How far does the influence of the warming-up extend?

J It is quite decisive, I think. Quite up to the end. I think it is really difficult to patch it. [Without it] some real essentials are missing. Because it, in a way, tunes up the whole process. It is a foundation, it presents all the topics, the entirety that one needs in this thematic unit."  
(J/30Mar95)

### **Orientation and the other learning actions of the cycle**

Only motivation, no other learning action of Engeström's cycle, came up with J and F. F presented, as she had done in the first round, aspects that contribute to the dimensions of *Motivation is within orientation* and *Orientation supports motivation*. J added a statement to the latter:

(174) "Once more about orientation: The definite, real goal of it is to provoke problems like "aha, THESE kind of problems" in the students and then produce answers to those, and furthermore, they should feel that they really are engaged in this thing, that they in a way see things with their own eyes. And "when I now do this marketing communication, how shall I do it?". That it would be personally an important issue, one would be living INSIDE of this." (J/30Mar95)

F presented ideas showing how complicated it may be to distinguish between factors of motivation and orientation:

(175) Without a basic motivation and interest the orientations [o.bases] and orientation won't work. So, if orientation is meant to motivate, should motivation be there before orientation? And, when a thematic area has been dealt with already and you compare it to the orientation basis and then nicely find causes and effects, this again strengthens the feeling of doing well, of being capable of perceiving things. That adds to motivation. Kind of a chicken-and-egg syndrome." (F/9Dec94)



### *Confidence and motivation*

Motivation and orientation also require a *confidence to prevail in the relationship* between the teacher and the students:

(176) "... if the student is meant to take things seriously, to be engaged in it, I have to be able to motivate the students to orientation. If I want a successful motivation, a confidential relationship is needed. That they would not too much question that we do it this way." (F/12Apr95)

### **8) Case (F)**

#### **8a) Profile of F**

In F's opinion, orientation has become a more organic area in her instruction. She is actively aware of it, and she puts an effort into it. Orientation used to be just a few questions to the class in the introduction to a new course, but now she says that anything in the lessons can be bound to it and it contributes to a more comprehensive view: instruction is always just refining orientation. To some extent, she says, she has got rid of her teacher-centredness and the students have designed some figures. They have taken time for orientation.

During the second round F still keeps blaming herself for "old (wrong) routines" and getting into a rut. She is concerned with keeping up with the facts of marketing and business administration, and she would like to get new stimuli. She has been quite cautious with orientation bases and has tried to limit the factor of surprise in them.

F has considered the substance important, but now she would also like to develop her methods of instruction. The teacher training she received in the 1970s does not give appropriate tools for solving the problems of today. However, new methods are not always well received by the students - they sometimes seem to think that the novelties are more or less for their entertainment.

(177) "There are differences between evening classes and day classes, contradictory pressures. The evening students present - how should I say it - kind of a traditional school. Their ability to figure out many-sided methods (that they are meant to develop their qualifications) may be restricted. The evening students think "well, they are changing methods to entertain us", and they do not see the aim of development." (F/9Dec94)

Nevertheless, in her opinion, orientation is crucial for the learner, not for the teacher in the first place. Learners should perhaps be more aware of their learning.

(178) "To realise the significance of orientation ... well I have been thinking whether the students ought to be more aware of the different stages of learning? Last year I had one group, and at the end they complained that an orientation is ALWAYS made [and they thought it is not necessary] when moving to a new thematic area. I then thought that this is quite useless if the students do not figure out the meaning. If orientation has no significance to the students, only to the teacher, then it does not serve its purpose." (F/9Dec94)

#### 8b) Practices of F

In the evening class, with the thematic area of *Distributor Agreements* the students had outlined their own orientation on transparencies and the teacher offered some additions.

(179) "I said they shouldn't delete ideas from their own lists. But if there is something in my list they don't have, they are welcome to put it in as a complement. I now have tried to give them more self-confidence. Often the student may think that if his or her ideas are not precisely the ones the teacher has presented, they are totally wrong - and yet the basic idea of theirs might be quite fine." (F/9Dec94)

The students in another class had their "own (fictional) enterprises". At the outset of the course the method was traditional classroom instruction

and the first major theme was *How to Establish a Company*. When moving to another major theme of the year, *Logistics*, F gave the students some handouts and articles about the theme. She pointed out the relevant pages in the textbook and gave the students some basic questions to work with independently. Quite soon they also were given a learning task where they were to outline some orientation basis for logistics. In addition, the students were to explain both what problems might exist in logistics processes as well as what decisions an entrepreneur needs to make (two orientation bases appear in Appendix 28ab). When the students presented their figures, they preferred not to comment on the works of one another. The teacher had to do it.

In a questionnaire to the students (December 1994) and in a discussion (Appendix 28c) I had with them, they basically seemed to have understood the idea of orientation: a comprehensive view into the entirety of the theme, its internal relationships and its basic ideas. Some of the students thought that teamwork was the main purpose. Some had experienced problems with the start, with "not knowing enough without having been taught first", and with how to grasp a complicated entity.

The students seemed to like collaboration. Several of them underlined the importance of being conscious of what one is doing. About half of them said (when asked about) that they would make the figure in another way now (after a while). The majority of the students considered the role of the teacher as assisting the process only: "The teacher can give new ideas." Someone was also wondering: "If the teacher has her own view, our figure is perhaps not acceptable to her?"

In the last phase of the second round F said that she now started a new thematic unit by having discussions with the students about the mode of working and about the content. The students were free to raise questions and to wonder aloud. She wished to encourage them to look for individual and independent solutions.

(180) "I have tried to say that every group need not have similar answers, it depends.... In a way, they accept the chaos in the beginning and take a stab somewhere. And if another group says something else, they won't mind. They make their own one. I have tried to encourage them, to create self-confidence. That there may be several correct answers." (F/12Apr94)

## 9) Case (J)

### 9a) Profile of J

J has become aware of the theory and practice of orientation. She is really considering orientation now, and she is of the opinion that it is essential in learning.

L (181) "Where did you get this theory?"

J "The first touch was in the beginning of the 1990s when I attended course in pedagogics at your institute. It was meant for those who had done the teacher training years before. Yet it's fascinating that I think that I have been doing quite a lot of these things quite intuitively (...) and of course, when I was in that "Learning in English" -training [in a university], that had some effect, too."

L "What was that about?"

J "We were pondering how to begin [with a course]. In English. (...) We did a project of how to begin."  
(J/30Mar95)

### 9b) Practices of J

J thinks that the students ought to be more involved when a thematic unit is being planned. She would like to enhance discussion and interaction, and ideas ought to be put on paper, too. In the thematic unit of *Marketing Communication* the class was discussing the theme at first on the basis of J's questions. She had completed a plan for the course. They also used a model, an orientation basis. She now tried to direct the

discussion to fit the basis and to help the students in finding out relationships between their ideas and the basis.

(182) "I had prepared some questions. Something like "In what situations should a company do marketing communication?" This raised discussion and we made notes of it. Another question was about "what kind of problems [linked to the situations] there are in companies?" That was an evening class, so they had experience enough to say something about this. (...) We had a ready-made orientation basis, copied from a marketing textbook. I tried to direct them to notice how extensive this area is, that it is not advertising only." (J/30Mar95)

The students then developed a large campaign plan independently with the teacher just being consulted through the process. They had to justify their suggestions and explain where the knowledge came from.

#### **The experienced teachers versus the (student) teachers**

The experienced teachers indicated considerable transformations in the second round. It looks as if they had had the ideas hidden in their minds, only to be bursting out all at once. The general view is much like the one of the (student) teachers in this same round. The definitions presented by the experienced teachers were more or less the same, though with characteristically less nuances. Orientation seemed to have become a tool of instruction for both of the experienced teachers, which in the first round was not all that evident, particularly in the case of J.

(183) "About the significance of orientation... it has been more and more emphasised now with me. It is really important how you start with a new thematic unit."  
(J/30Mar95)

The experienced teachers discerned new functions of orientation. That orientation extends over the entire learning cycle, and that it has a tight connection with motivation, was confirmed by them. They were

interpreting the concept of orientation basis and F identified even some transformations in her notion of orientation bases (Excerpt 169).

Otherwise they did not present many opinions about orientation bases and modelling, yet some fresh ideas came up, for example the idea of a small play (Excerpt 170).

The experienced teachers considered the role of the students important in orientation and they were developing new methods of working. F underlined the learners' confidence in the teacher at the beginning of something new in instruction (Excerpt 176). Both teachers seemed to bind student-centredness tightly together with orientation. They met with the same problems as the (student) teachers did: the students are not always accustomed to working in accordance with the new ideas (Excerpts 177-178) and they should perhaps know more about what constitutes learning. Signs of the traditional teacher-authority thinking were also visible in the opinions of the students ("the teacher should teach, do the work", "teachers won't accept other solutions but those in line with theirs?"). On the other hand, several of F's students (Appendix 28) understood the benefits of her method quite well, and they also seemed to accept it. The need of ideas was affecting J: How to find good ways to begin a course?

(184) I have this problem, and it takes so much of my time, of not knowing how to begin a thematic unit in an unforced way. How can I make this? I strongly aim to add to the students' desire that "I really want to know more about this, and that I'm inside of this", as a student I mean."  
(J/30Mar95)

The notion object in F's and J's case seemed obscure: is object an action or is it a larger activity? F still defined activity theory as linked to active students and J said that she now had no idea at all about it. They made no comments on collaboration at school.

## 9 THE THIRD ROUND OF THE STUDY 1995-1996

### "CRYSTALLISING - AND NEW HAZY AREAS"

The third round confirmed the ways of thinking and the practices that the researchees had been developing in the course of the study. This round also produced a number of minor novel signs, including some ideas of transformations, small innovations and new problems.

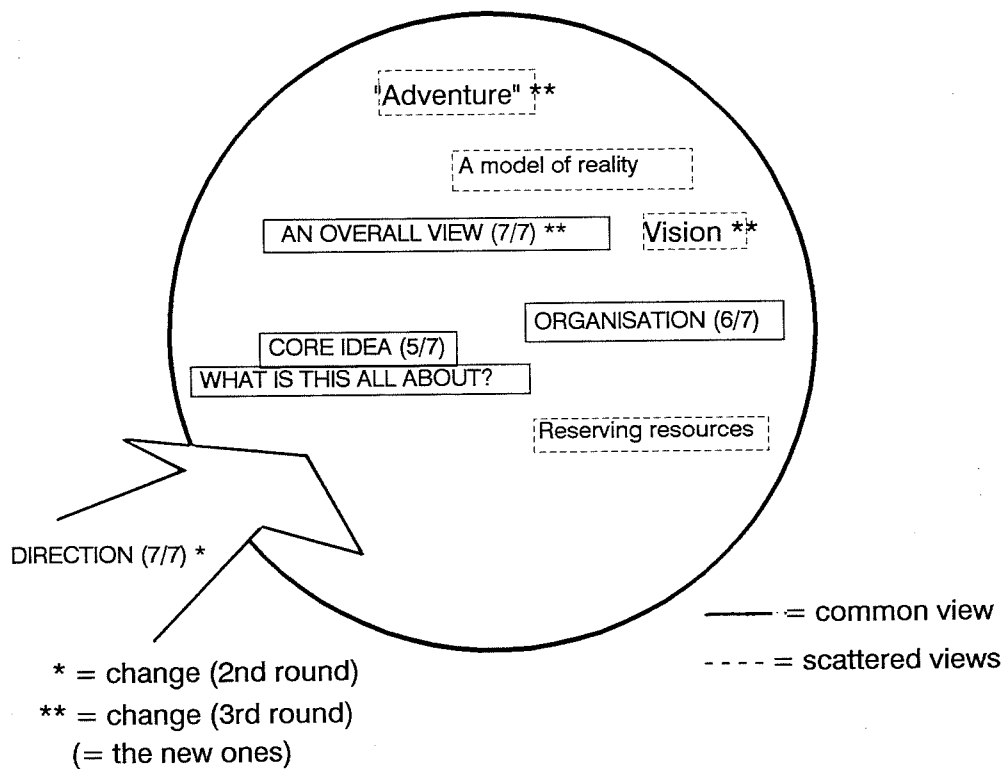


Figure 18. Interpretation of the concept of orientation (3rd round; the (student) teachers).

## 9.1 THE CONCEPT OF ORIENTATION

### Definition of orientation

By the end of the third round every teacher informant had referred to "an overall view" (entity") and "direction" when defining the concept of orientation (Figure 18). The idea of "entity" was, for example, implicitly visible in E's definition including even new properties: orientation as an adventure and as a vision or an image.

(185) "... what orientation then could be... something goal-minded ... that you have a thought or an idea about a really important thing in your mind ... it might show direction on how to get there. Based on this you then make those different phases you meet with. And then, of course it might also be something else, and it certainly is an adventure it is ... and then the outcomes may be different. But it is an idea about what one is going to begin with now, for example, about how to build a house, an image of "a warm red cottage and you are looking out of its windows"."  
(E/14May96)

### Functions and characteristics of orientation

With respect to functions and characteristics of orientation a few new properties and dimensions arose up (see Figure 19):



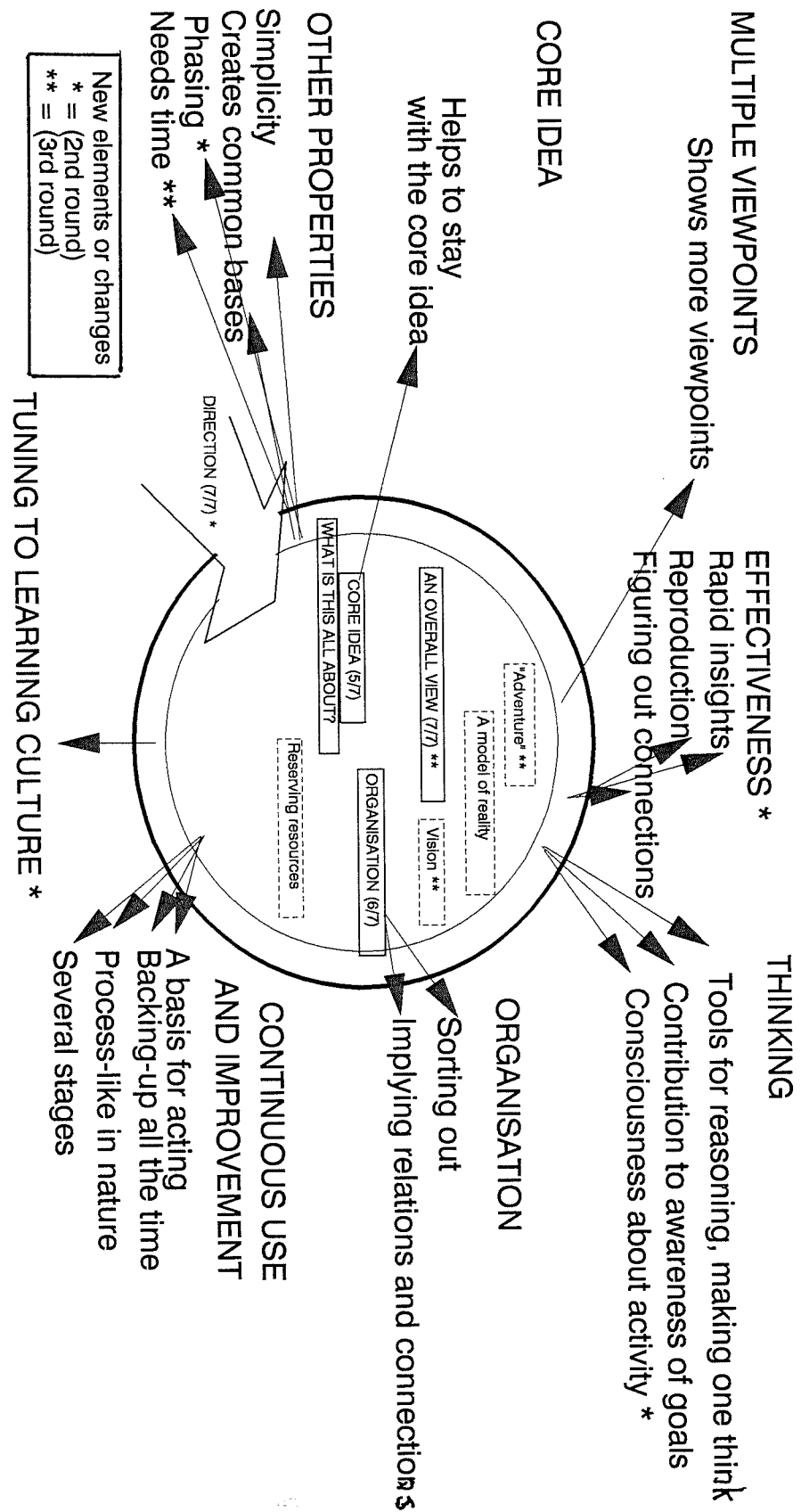


Figure 19. Functions and characteristics of orientation (3rd round; the (student) teachers)

*Other properties: orientation needs time*

In C's opinion the phase of orientation (in the beginning of the learning process) has to be quite extensive. H presented another aspect of the same issue: "There is not much time available for orientation".

*Other properties: risk of supportive or alternative models*

"Major orientation includes minor orientations." There ought to be supporting minor orientating phases during the learning cycle. This issue had been flickering with three informants in the two earlier rounds (A, B, H), and it was broached again. A now sensed a risk if several models are used in various phases of a thematic unit; they might add to the complexity:

(186) "It is difficult for me to make an overall picture about such a big entity, and then there are those minor orientations, the relation between them. It shouldn't be all the time just showing models, because that would lead to a chaos of models for the students. They wouldn't be able to figure out anymore what is related to what and so on, and what is essential and..." (A/26Apr96)

## 9.2 THE ORIENTATION BASIS AND MODELLING

Modelling as a permanent tool: Two informants (G and E), who had not been (tangibly) modelling, showed novel ideas in this round. G's students made drawings as a conclusion (evaluation) for a thematic unit on Activity-Based-Management (Appendix 29). E mentioned his earlier criticism of modelling that included the idea of orientation as something where the teacher does not give the students a chance. However, he now indicated a growing appreciation of models.

(187) "It was perhaps the models that I was against right in the beginning. It seemed to make no difference in teacher education: even if the teacher is orientating, the students have the same role of sitting. (...) It is fine if questioning lowers the barriers to model-making. Few people make models, most of the people imitate others. It is a pity. It is nice to make them." (E/14May96)

*Models of learning activity* is a new feature, which appeared with two teachers, C and G (C's model is presented in Appendix 30).

### 9.3 ORIENTATION AND THE CYCLE (OR SPIRAL) OF LEARNING

The phenomenon of phasing in orientation (alternative, supporting models) might refer to reorientation where partial models are used. Otherwise there were no clear new references to the linkage between orientation and the entire cycle. Some new aspects were to be seen in the relationship between motivation and orientation, and also between evaluation and orientation.

#### Motivation and orientation

A major transformation came up with H. In the previous rounds she had not considered motivation to be closely related to orientation, but she saw the topic in another way now. She had moved to another school and her new students were not all that interested in her subject, Business Administration. She now wondered whether she ought to pay more attention to motivation:

(188) "... I think that the phase of motivation is even more important than I've imagined. The students I had [in the other school] were better motivated to study issues of this kind, and these [the new students] were not. (...) This makes one think before starting with any orientation bases or orientation systems... you need to make them feel motivated before you start." (H/13May96)

H's view is backed up by that of D, who has also begun to think of motivation more thoroughly. D used to think that motivation self-evidently derives from orientation. By now she had come to another idea: motivation must be considered in particular.

(189) "I am thinking about motivation. I have been thinking indeed that it comes automatically, but now I do not necessarily believe that. Now that I boldly have used the same system in the beginning, now it looks as if my system was wrong, or perhaps I have become lazier myself. Or maybe they won't turn enthusiastic anymore just by figuring

out "what are the relations, why are we doing this and so on". I feel now that I quite separately - well, separately and separately - need to take motivation into consideration."  
(D/24Jun96)

### **Evaluation and orientation**

*Evaluation supports orientation* - this new property was emerging with C who had added an evaluation discussion to the outset of a thematic unit. They also addressed learning in the traditional school system. This discussion seemed to contribute to orientation:

(190) "Students clearly speak about contradictions. Based on this, you can easily move the discussion towards the ways of working in school and in working life these days, whether the ways in school are reasonable. Well, the students have been stating that they aren't. There are quite a lot of people who have been a long time in working life and they understand it immediately. This makes the shift to this new tool, this practice enterprise, much easier. They understand why this tool is used." (C/26Apr96)

## 9.4 INDIVIDUAL CASES AND PRACTICES OF ORIENTATION

### 1) Case (A)

#### 1a) Profile of A

A keeps talking about the vitality of simple models. She believes that she has consciously moved to orientate towards whole units. She now aims at binding all the learning tasks to a (basic) orientation model of the course. Yet she feels that orientation is not a clear issue for her: "There is something unsettled!" (A/26Apr96).

#### 1a) Practices of A

In the course of "Management and Human Resources" the young college students criticised A's orientation models for not being clear and comprehensive enough to be understood. A had used the models to support a discussion of the core ideas of the course in its beginning and the students suggested that they could construct a model of their own:

(191) "They did it on their own, suggested how to make a picture about what they have learnt. They came to the idea when we were handling the results of an exam [halfway through the course]. (...) One task was to draw such a kind of figure. The students then began to ask "How to illustrate this?" They had no idea about the core of the course. They now tried to make a picture of their own - and as they wished. Two boys were leading the group and they voted on what kind of picture they would make. So they decided to use the back wall of the classroom and have the picture permanently there to be continuously supplemented. And they thought about larger and smaller elements and about the overall view. They drew a sea there with a lot of small fishes and now they always return to that. Most probably, it has helped them to figure out the idea of this course."  
(A/26Apr96)

## 2) Case (B)

### 2a) Profile of B

B keeps stressing whole units in learning and real-life connections. The third round confirmed that B's conception of the orientation basis is a case study (a "real" enterprise). He now gave an explanation to this interpretation: The way of thinking is vital. B tries to enhance the students' way of thinking with the help of the examples of practice. Generalisation will be manifested by these examples of real companies, rather than by a (perhaps) static reduction of one model. The thinking of a human being is living and changing, and a concrete example flexibly provides for various aspects. In B's opinion a pictorial reduction of a real-life situation is not good enough, so he does not use models of that kind. Nevertheless, B states that models are part of his instruction mentally, as a way of thinking. It is a secondary question, how the mental models are concretised.

(192) "The point is a basic model that you can implement ... and it works in any environment, if you turn it properly. I am only afraid that if it is served in the form of a very reduced model, it makes no contact, it does not turn alive. But if you have those phenomena of practice alongside, and you consider them over and over again, and always from a different perspective - that is what I have trust in."  
(B/10Apr96)

### 2b) Practices of B

B recalls the case of a local laundry in the previous year. It was a good setting for the students to implement what they had learnt in Accounting. Furthermore, it was a participative process, engaging the students and the teacher. It concretised the students' notion of working life and assisted them towards a logical overall construction, thus avoiding dealing with

scattered issues and mechanical-technical numeration only. B is planning contact companies that could function as orientation bases:

(193) "I have tried to develop an idea about "godfather company". The idea is that this company would be a kind of orientation basis. The students might work there for a while and get more self-confidence. And they could see the relations of various topics "aha, it goes like this". It would be an extension of training at work, a more controlled version. Because taking an enterprise environment, including the attitudes, into a classroom - it is not an easy task." (B/10Apr96)

### 3) Case (C)

#### 3a) Profile of C

C is getting better and better acquainted with learning theory and with activity theory. He has developed a model of his own about learning (in Appendix 30). Modelling remains important with him, and he finds that new theoretical aspects arise. C analyses models and orientation bases: The models they have used with the students have been mainly algorithms and advance organisers, and also perhaps prototypes. He thinks he is coming closer to systems models now, and mentions also the demanding germ-cell type.

(194)

C "I quite often think about modelling and how I haven't very often come to germ-cell thinking. It is extremely demanding (...) we basically never came to that idea in modelling. "

L "What would it demand then?"

C "Well. I think it needs a longer perspective, a longer time to work with it, with activity and, in a way, an extension of the whole picture to understand the underlying phenomena. We have been pondering what there is actually behind the activity of companies, profits and owners' dividends and the interests of the personnel." (C/20Apr96)



### **3b) Practices of C**

This year C made changes in the orientation phase. Right in the beginning he conducted a thorough discussion with the students about learning (Excerpt 190). A new feature is that the students have gradually began to talk about their learning:

(195) "Now they have begun to present comments such as how this would be from the point of view of learning. This is something new." (C/20Apr96)

C's practices have not changed much otherwise. Modelling, the models of the students, have established themselves as vital tools in his instruction. The students' develop own models (one example by a student is presented in Appendix 31). The students have realised the value of the models:

(196) "The student in charge of accounting, he began to think about it right away, and he said "well, I'll make a model about this and then we'll see". He had figured out how difficult it is to handle such a complicated issue in another way, and how a model is a significant tool in this." (C/20Apr96)

## **4) Case (D)**

### **4ab) Profile and practices of D**

D tells that she has had a hard schoolyear, no time for developing new methods, so there is nothing much to tell. Her practices are as before, yet a slight trend towards larger entities can be seen. She feels more comfortable with the routines of orientation now; perhaps even too comfortable which is "not a good thing". She tells of not being worried anymore. She still ponders collaboration with her colleagues and the difficulties it involves:

(197) "I think it is quite deep in teachers that you can't get rid of the traditional. If I think of the school of mine, no one else came along. Our deputy head has been talking about that, but I think no one has been listening. Every year he tells how he has made an orientation basis for the whole school which could be developed further. No one reacts and there it is. " (D/24Jun96)

## **5) Case (E)**

### **5a) Profile of E**

E's major transformation towards appropriation of orientation is going on. He tells that he feels more satisfied now and that his thoughts have become more crystallised. E describes the possibility of the school being a place where, through activity, people can have a pleasant time ("joy of learning"). In his opinion, students ought to be active participants in the learning processes - "although they would like to do small cuts only". E's aim here is towards larger units (series of learning tasks).

(198) "The students like to do those small pieces of one lesson or two, to end with clean results and that's it. It doesn't bother their mind anymore and - then "finito". Then you get a new piece or process, a very small one, and so it goes, neatly skimming the surface." (E/14May96)

### **5b) Practices of E**

Real-life practices became more and more visible in E's practices now. He was quite satisfied with the project of the previous year. The beginning had been unclear, but it had ended well. The students had been committed, active and happy. E now would like to have more direct assignments from working life, preferably including larger units. He would prefer a task that appears somewhat unclear, thus raising further questions. Principles of orientation are still problematic to him.

(199) "This spring we made a traditional marketing research in the lessons of marketing. It was for a near-by gas station,

about their assortment and prices and image. It [orientation] did not quite work in practice, but I'll try to be moving in a direction where the students would get the task directly from the people working with the company. This owner, he could not be with us right in the beginning, but shortly afterwards, however. And of course he was there when the outcome was presented." (E/14May96)

## 6) Case (G)

### 6a) Profile of G

Terms such as "zone of proximal development", "learning theories" and "contextualism" come up in G's speech. He is modelling now, but the models are rather about learning activity than about the substance itself.

G (200) "I relate the models to pedagogics, not to the substance. How to handle this issue. How to relate working life to learning."

L "So your models are not about substance, but learning activity?"

G "Yeah. For many years I have not been concerned about the substance. That's not the problem, there is knowledge as much as you like. The core problem is how to create learning." (G/29May96)

Orientation covers the whole (Engeströmian) cycle, and G rather uses the expression "development" than "(re)orientation" for further phases of orientation in the learning process.

(201) "It (orientation) doesn't end at all, in fact. Or, hold for a moment, I am not talking about orientation then, it is development. There is a kind of an obscure area - that you in a way are dropped on a zone of development that never ends." (G/29May96)

## 6b) Practices of G

G still stresses the students' self-directedness and self-evaluation as well as personal learning plans or contracts with them. The students were now making models for evaluation (or conclusion) (Appendix 29) of the thematic unit on *Activity-Based-Costing*:

(202) "It proceeded quite clearly. At first there was a task in order to appropriate concepts. Classroom work, independent work, teamwork. They worked and presented their outcomes to the others. They read articles and books about Activity-Based-Management. It was a course of Activity-Based-Costing." (G/29May96)

## 7) Case (H)

### 7a) Profile of H

H has moved to another school. She values orientation, but it does not work with her new students who consider orientation a waste of time. Motivation comes up in H's thoughts now (Excerpt 188). She also feels that she has somehow stagnated.

- (203)
- H "Future prospects? I do not know how to go forward."
- L "You said very clearly in the phone that you feel you are stagnating."
- H "I am quite sure that there is a next step, how to use this, but I have not been able to do it..." (H/13May96)

### 7b) Practices of H

H's practices are mainly as they used to be. Orientation is highlighted at the beginning of a thematic unit, and at the end they once again check that everything is all right and included. Because of difficulties with the

new groups, she has considered various motivating solutions, for example having visitors from working life. A professional might take up questions that would make the students sensitive to what is really needed in working life.

## 9.5 REMARKS ABOUT THE THIRD ROUND

A number of issues became more crystallised in the course of the third round of the interviews. Some minor enigmas of the study became illuminated and partly explained. In this section a summary of the transformations and problems of the third round is presented. An overview of all the three rounds will be drafted in the last section (9.7) of this chapter.

### **Transformations and other findings**

In the definition of the concept of orientation a minor change occurred during the third round: By its end, every (student) teacher informant had referred to orientation as "giving an overall view". Only a few new functions of orientation arose. Two informants, who had not been tangibly modelling, now gave indicators in that direction, E by his positive attitude towards modelling, and G by the students' evaluative models (Appendix 29). One quite new property emerged: Modelling can concern learning activity, not the contents only (C and G). The object of modelling changed.

B illuminated the aspect of cases and other "company" examples as orientation bases: Generalisation will be manifested through various examples of real companies. A concrete example flexibly provides for various aspects of a phenomenon. Motivation was now linked to orientation by almost everyone and with some it was emphasised (H, D). C's evaluating discussion at the beginning of a course and the evaluating drawings by G's students may first look like belonging to the linkage between evaluation and orientation only, but actually they refer to the entire learning cycle. Evaluation in the beginning supports orientation and keeping control over the entire cycle. In their models, G's students reflected on the entire cycle as a final evaluation.

### Notions of the object and activity theory

The issue of object remained mainly quite opaque. C (who had underlined the object also before) now defined it quite thoroughly (Excerpt 206). The interpretations of activity theory were slightly changed. They now were as follows (see also Table 4):

- a) "Students are active" (D and E, see Excerpt 204)
- b) It is somehow the learning cycle (A and H, see Excerpt 205)
- c) Activity theory deals with practices of working life and/or objects from such life (B and C, see Excerpt 206)
- d) It deals with open learning environments (G, see Excerpt 207). This might be related to the context of working life; this is how it has been interpreted in Table 4.

	1st	2nd	3rd
No idea	D H		
Active students	A C G E?	G E	D E
Working life	B	B C	B C G
"Reasoning"		D H	
Learning cycle		A	A H

*Table 4. Notions of the (student) teachers about activity theory (in the 3rd round of the study)*

When comparing the situation with the one in the first round, the trend has changed roughly towards active students, accounts of learning cycle and practices of working life.

(204) "Activity theory... I've forgotten already what there was in the books... but it underlines activity and learning by doing and, and... This is what it is, if put short."  
(E/14May96)

(205)  
L "Activity theory?"

A "I have that mess in my head... motivation and orientation, how to internalise and externalise, whether you are able to implement this and to evaluate ...That figure by Engeström, it is kind of a hazy spot in my head, I'm going in a circle, I'll never be able to complete it ..." (A/26Apr96)

(206) "Well... [laughter] It is a theory to analyse activity. In fact, it has been unveiling more completely this year only. What is included in activity .... In fact, I now feel I understand it, and when you read those books, you no longer need to stop and think that much. But it has been a painful process to get into it, it has not been easy [laughter]. All of this, this object-orientedness and understanding what a tool is - that it can be talking, or an evaluating discussion, and so on. To figure out this has been the result of a process."  
(C/20Apr96)

(207) "Activity theory includes a constructivist and contextual learning theory. This idea has not actually changed at all with me. I mean, I still see activity there within, one begins to act, and the right context is now vital... open learning environments where to act." (G/29May96)

### **Collaboration at school**

More aspects regarding collaboration were found in the data. They were dealing with the organisation of work (Excerpts 208 and 209), the slow process of developing collaboration (Excerpt 197), and the need for collaboration in general which was justified with reasons from working life, from environments in a large meaning (Excerpt 210).

(208) "If you think of the trend, it ought to be towards bundles, towards large works of several part-areas and stages, where several teachers may participate. It is not only having in mind the results to come within a year, it is also a process of a lot of guidance and so on. It is a series of learning tasks that are linked to each other." (E/14May96)



- (209)
- L "With the practice enterprises several teachers are working together? In this respect, have there been any new interesting features arising this year? Has collaboration increased?"
- C "In fact there have been obstacles of collaboration. All the lessons are in sequence. We do not have any time in common. Even one lesson in a project day would be fine, we then could have meetings and everyone could participate. This would foster collaboration within the teaching team. In the longer run it will be necessary." (C/20Apr96)
- (210) "This kind of work needs another system of division of resources, the number of lessons ought to be reasonable. One needs to make new kinds of learning materials etcetera. Our head master is very much for these new methods. (...) [Collaboration is important, because] in practice there are no tags on the problems that this is a marketing people's problem and this is one for the accounting people. There are problems only. Furthermore, the tasks in working life are comprehensive: marketing, accounting, information technology, financing - connections to other areas. With internationalisation languages come along. A marketing person comes to an accounting person giving an English balance sheet and asking "will you please have a look whether this is a company we could start to do business with?" This is something quite natural." (B/10Apr96)

In the teachers' opinion collaboration is important, but there are several obstacles: interest and attitudes in general, and the organisation of work (e.g., time resources and schedules).

Orientation in instruction is a phenomenon that requires commitment from the teacher and the ability to alter the thrust of his or her work. This can be quite a demanding task to manage alone, thus collaboration - even in the form of a collegiate discussion - might be helpful. None of these teachers had a workable net of collaboration options available. This might be one reason for their very individual solutions in orientation in the second and third year of the study.

## 9.6 THE EXPERIENCED TEACHERS

### Orientation and its functions

A summary of the accounts of all the nine teachers by the end of the third round is presented in Figure 20 p. 270. The definitions of orientation put forward by the experienced teachers were quite close to the general definitions offered by the (student) teachers. The experienced teachers presented some new nuances for the concept of orientation, and J, in particular, defined it quite thoroughly by third round. For her, orientation implies "what this is all about", "an entirety" and contents of learning, and how things are linked to each other.

(211) "I've not thought about it, but at the moment I consider it as something which tells what this is all about and what the overall view is, and what issues are linked to it."  
(J/19May96)

In F's opinion, orientation is activity. It is particularly explicit in the beginning of the learning process, but it is linked to the entire process. The overall view is being sharpened in the course of the process.

(212) "In orientation one gets in touch with the essentials, and later in the process, when you work with this, the picture is getting sharper, the model is getting sharper, if you now have one like that. In this way you'll meet with new perspectives, and these need new sidepaths, new linkages. When you consider actions in a company, they are not loose ones, they are linked to each other." (F/29May96)

With respect to functions and characteristics of orientation two new dimensions came up, one of which was different from those of the (student) teachers.

*Core idea: basic principles*

F stated that a good orientation contributes to learning by revealing the basic principles of a thematic unit. This motivates, too. *Basic principles* is a dimension not presented clearly by any other informant. She thus added this to the property of *Core idea*.

(213) "My impression is that a good orientation contributes to creation of basic principles of a thematic unit, of important points of view. I mean one can create a basis for motivation in the long run." (F/29May96)

*Organisation: implying relationships*

This property now came up with J (Excerpt 211).

**Orientation bases and modelling**

J assumed that orientation basis is a picture of an entity, either in the mind or in the form of a drawing, for example. Her definition did not necessarily differ from those of the (student) teachers.

(214)

L "We have not talked much about the concept of orientation basis with you, I cannot remember you defining it in the previous phases of this study...?"

J I don't think I am going to define it now either! [A long pause.] I don't have the faintest idea at all about what is meant by it, but I could reason that it might be a picture of an entity, in one's mind or, if one wishes, drawn. I myself would like to draw a figure or to use mind-map techniques. At the moment I like mind-maps, it is such an easy system. (J/19May96)

F presents a *roleplay* which may be considered as a type of orientation basis. This roleplay may construct a framework for an entire thematic unit:

- F (215) In exports marketing I now have dealt with culture issues a couple of times. I made a kind of a roleplay, and that was the orientation. In a way there were "the blue ones" and "the red ones". You would have a red piece of paper telling what kind of culture you come from. And the blue ones had their own ones. Then there was a situation of being in an international conference for the first time. One was to evaluate whether someone there might be a potential business partner. Playing in one's own framework one was to figure out what kind of a culture people are coming from. Of course I had knowingly constructed a framework that takes up the essentials of the cultural setting. Afterwards we discussed what the student could learn in this exercise (...)"
- L "How would you describe that framework or setting?"
- F "It is about seven dimensions, individual-collective, internal-external, and so on. In the East, for example, the external is emphasised, they are longing for harmony with nature, whereas the internal considers that a human being may change the direction of the rivers if it is good for humankind." (F/29May96)

### **Orientation and the cycle of learning**

F clearly expressed that there is a linkage between orientation and *externalisation*: If orientation is incomplete, one meets difficulties with implementation (externalisation). In the course *Agents in Imports* the students of foreign trade were to put principles of the course into practice. They were to evaluate a fictive contract made with an agent, but they failed in this:

(216) "It was a case about a Finnish manufacturer of furniture for children. Their first participation in a fair, and the general manager comes home from Brussels with a contract with a brand-new agent. The students were to evaluate this contract, but some of them had no idea how to do this. It was a total failure.

I think this tells about the importance of orientation. I think that a good orientation constructs basic principles. [In this case this did not happen.]" (F/29May96)

## 8) Case (F)

### 8a) Profile of F

F seems to have held on to principles of orientation she had shown before. She is consciously using orientation bases. At the same time she feels disappointed because the students seem not to appreciate her ideas for activating them. F is wondering whether she gets too stuck with orientation, whether she is not advancing at all. She says that she is working too hard and that she feels frustrated from not being capable of living up to the expectations of her context.

(217) "I have experienced bad disappointments. At school a questionnaire, a feed-back, was collected (customer satisfaction of the students). I was being criticised for giving tasks that they have not been taught about. In the last lessons I tried to justify this by underlining that these have been orienting tasks that are not even meant to be perfectly answered. I had explained this also earlier, but that's how they had interpreted this now: doing exercises without being taught first. They had not figured out my purpose of activating their thinking." (F/29May96)

### 8b) Practices of F

In the programme on foreign trade, in the course (thematic unit) of *Different Cultures*, F has used a general framework in which any culture can be discussed. It includes the seven dimensions as described in Excerpt 215. The students had a distance learning task of preparing a programme on how to introduce Finland and Finns to a foreign business visitor. Then the same ideas were handled from the perspective of some other European countries. The framework was (occasionally) recalled in various phases of the thematic unit. F felt that this worked well, and the results of the exam at the end of the course borne this out:

(218) "I had this task in the exam: You are working in an international Finnish company and your job is to train Finnish people moving abroad to meet with different cultures. The task was "Meeting with foreign cultures - 7 dimensions". They were to describe the main contents of a presentation they would make to these trainees.

The students did this task mainly splendidly. There were only one or two persons who did not have much to say. It seemed to be difficult for the students that one could answer in various ways." (F/29May96)

## 9) Case (J)

### 9a) Profile of J

J conceives the issues of orientation from a more comprehensive perspective now, which she considers helpful:

(219)

J "I cannot tell whether it has become visible in my work, I mean that I now conceive this as "everything is linked to everything", but it has helped me and my work."

L "You mean you are thinking more of the entireties now?"

J "That's right. And about this overall mutual dependance ... there are so many other things behind everything. In practice this means, for example, that when we begin with a new theme with the students, I like to ask them to outline first what kind of ideas and issues are linked to it."  
(J/19May96)

J would like to have more founding in theory in order to get further. She believes in orientation:

(220) "What am I going to do next? I would like to have more backing from theory, and then I could do something again. I'd like to know more about this, because I believe in it." (J/19May96)

## 9b) Practices of J

The students were beginning the course of *How to Write a Thesis*. J told them about the work and underlined its the process-like nature. The students independently were to determine the thematic area of a thesis and define the research problem. A major learning task was "What do I know about the area of my study?". After that they were to make rough outlines and introduce the plan to the other students. Independent work then followed until the thesis was completed. Taking the initiative was not easy for the students:

(221) "The thesis, for example. It was difficult to begin with it, as some of the students were of the opinion that they were not able to do this work. "Well", I said, "make a mind-map". One of the girls made one and she was happy with it, because she thought she figured out some good ideas. But then she again got stuck at her writing-desk, and nothing was moving on, and she tried and tried to write something. We had a talk and she remembered that she had had the mind-map and it was a tool for her, and then she really began to write with the help of the mind-map."  
(J/19May96)

As a rule during this year's courses she had asked the students to develop some outlines which were then discussed together. Often all the ideas of the students were put together, as a compromise. The basis was not deliberately used in the course of a thematic unit, but at the end they returned to it. J talked about the process of the beginning:

- (222)
- L "Did you make the outlines as a picture or something, or were you just discussing ...?"
- J "In fact they were free to work it out as they wished. Quite a few made mind-maps, now that they have learnt it..."
- L "Did you do anything together, or did everyone just use the ones of his or her own?"
- J "I made one figure also myself, and then we tried to put them together." (J/19May96)

J's students spoke in an interview (20May96) about this process. They seemed to have mainly understood the idea of this kind of work.

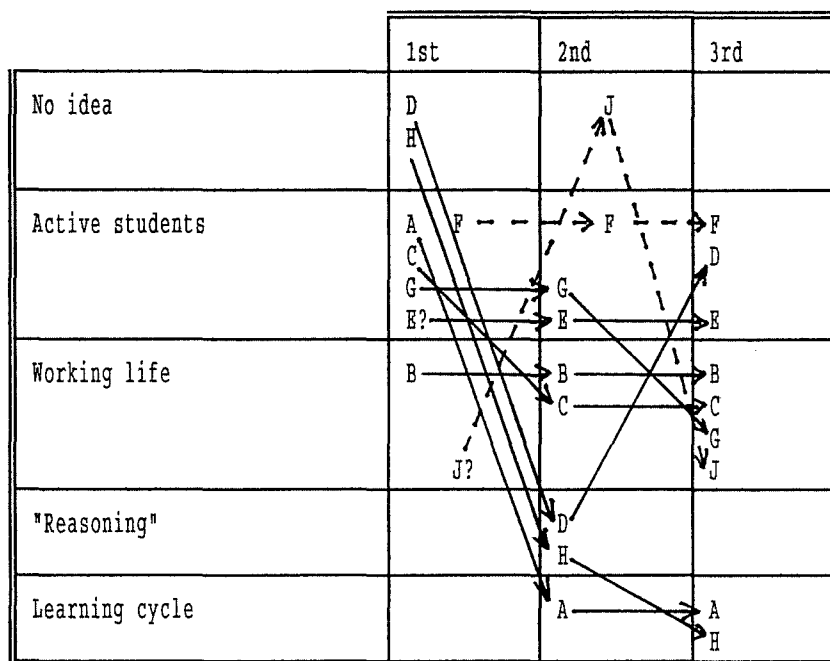
### **The experienced teachers versus the student teachers**

The experienced teachers have come quite close to the ideas presented by the (student) teachers. Conceptual definitions were quite similar, and the experienced teachers had also tried to put such ideas into practice. Both groups stress the students' central role, both of them underline orientation at least in the beginning of a learning cycle, and both of them are aware of orientation bases. As has been stated above, the experienced teachers' statements were less nuanced than the (student) teachers'. Furthermore the experienced teachers did not have the network available that the (student) teachers had been able to develop in the course of their teacher education.

F's notion of activity theory still was "active students" and J defined it by referring to "connections to working life".

A summary of all teachers' notions about activity theory during the three rounds is presented in Table 5.





*Table 5. Notions of all teacher respondents about activity theory (in the three rounds of the study)*

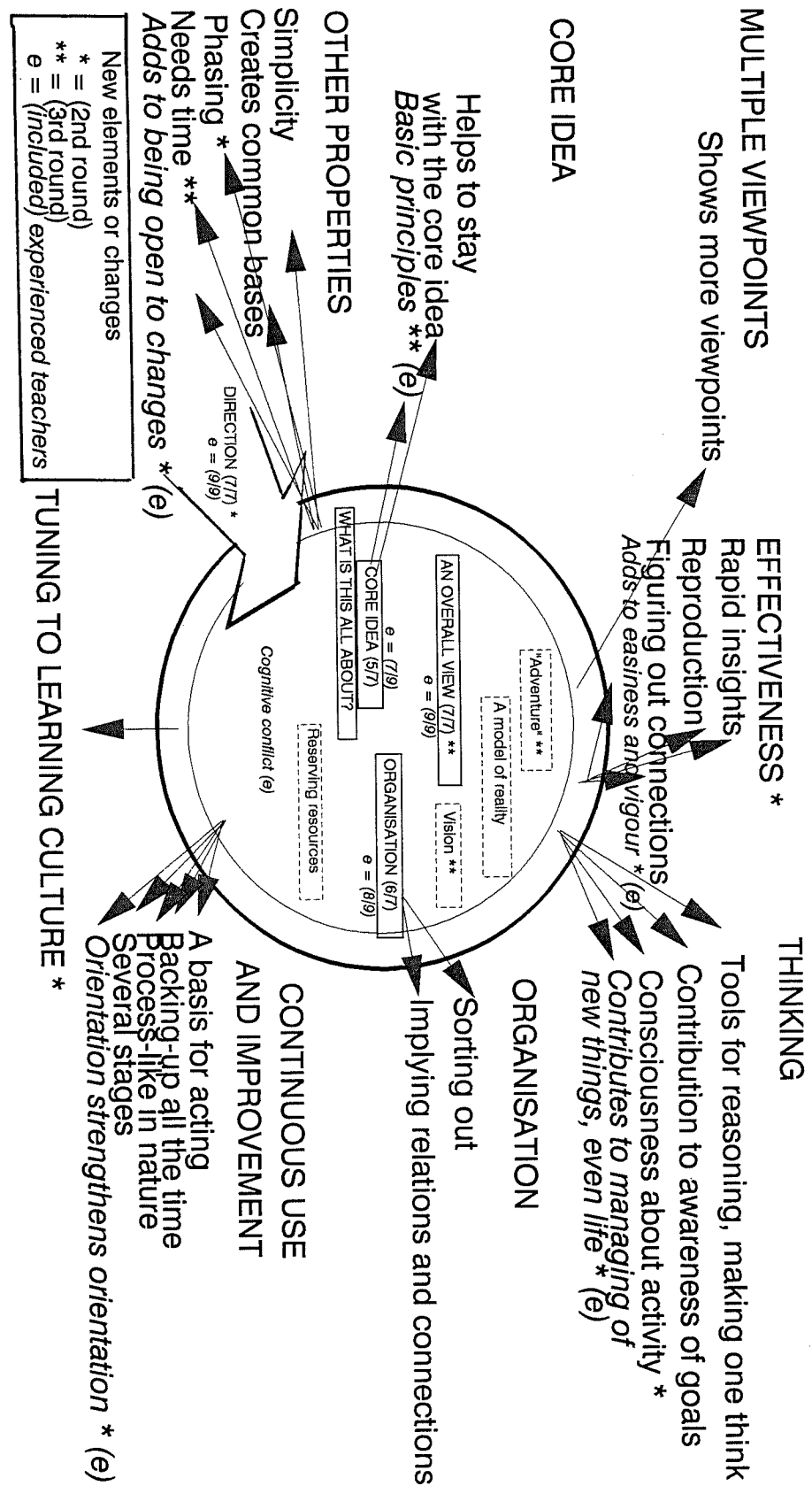


Figure 20. Functions and characteristics of orientation: all teachers (by the 3rd round)

## 9.7 SUMMARY OF THE THREE ROUNDS

What crystallised then within the three rounds? Firstly, the individual notions the teachers had about orientation seemed to be becoming established. Feelings of being worried were decreasing, at least the respondents mentioned the topic less in the later rounds than in the earlier rounds. Notions of the concept of orientation dealt with giving an overall view ("entities") of what is to be learnt, and implied a direction. Functions and characteristics of orientation constituted a heterogenous, though abundant, list by the end of the third round (see Figures 19 and 20). According to the informants, orientation covers an entire learning process (or cycle), and particularly the connection between orientation and motivation was emphasised strongly. The connection to evaluation also came up, but connections to other components of the learning cycle were mentioned only seldom.

The informants came to consider that learners should be the active participants in the learning process. Modelling proved to be a contradictory issue - arguments both for tangible and mental models were presented. Some of the teachers who did not favour modelling at the beginning of the study, began to exhibit a change of view by the study's end.

To greater or lesser degrees, all of the informants seem to have appropriated orientation as a tool. They want to stick to it, a notion conveyed by the teachers towards the end of the study, in Spring 1996:

223)

- 1) I have noticed that the better I do orientation, and the more thoroughly I think about the entire process, the better are the results. I am convinced about the significance of this [orientation]. (A)
- 2) In fact, I am more and more leaning towards it [orientation]. It used to be just taking some advantage before, but now I am leaning towards it. (B)

- 3) This is absolutely something I will be continuing. First we make that basis, then we'll see where it is linked to, and why we are doing this - because I feel that the students are more devoted in this way. (D)
- 4) I would like to go even further from this. I have been toying around with this significance of orientation on learning, well, it is a kind of vision-thinking, linked to motivation. (E)
- 5) I still think that orientation is important, and every time I start with something new, I make some kind of charts or figures, I try to outline what this could be all about. (H)
- 6) [With C orientation as a tool became clearly explicit in his practices with modelling.]
- 7) G dealt with orientation more implicitly. He supports continuous development, and orientation is a contribution to that. This is what he was stressing in the member-checking of this study in February 1997.
- 8) F's and J's positive attitude towards orientation as a continuous tool became explicit in the previous paragraph.

It remained somewhat unclear what really is the object of orientation for these teachers - whether it is a large activity of working life - only one of them speaks deliberately about the nature of the object. The notion of activity theory was nebulous, too (Table 5). With regard to the teachers' working environment, collaboration in schools was diffuse.

New signs, emerging towards the end of the study, were issues such as feelings of stagnation, time resources needed in orientation, and needs of knowing more about pedagogics (and theory of orientation). There were signs of the increasing role of evaluation as linked to orientation. The teachers talked about supportive or alternative models, about risks with models, and about difficulties with developing germ-cell models. There appeared models of the learning activity itself and ideas of tangible modelling (though against it at first). All these signs may show towards zones of proximal development.

The teachers encountered problems in the course of the study. In the beginning there was hazyness, followed by clearer views, then orientation perhaps did not work anymore or some teachers felt stagnated for reasons they did not know even themselves. Some of them wished for more collaboration, some wished to have better contact with the students, and some tried to find new ideas for their practices.

The most important findings or assertions of this study will be summarised and discussed in more detail in Chapter 11. (Appendix 32 provides a very condensed summary of research results. The analyst strongly underlines its indicative character. This kind of categorisation is violent and mechanistic, a lot of information gets lost. It is impossible to describe the many nuances in the accounts of the informants.)

## 10 THE CONCEPT OF STUDENTS' SPACE

Turbulence and complexity are typical features of our society. In order to cope with them you need flexible systems and avoidance of strict rules. This applies to the area of learning as well. Furthermore, students are today often expected to be independent individuals who take responsibility for their learning at their own initiative. This is also how activity theory conceives the learner role: In an ideal case, the students are active participants at all stages of a learning process and are the main investigators of the objects of learning. (See, e.g., Davydov, 1982; Engeström, 1982, 1983, 1991, 1994; Hedegaard, 1988, 1990; Miettinen, 1990, 1993.)

The object (activity) of learning is often complex and it may involve several parties, thus requiring collaboration and teamwork skills. This requirement is being emphasised in our schools, and it is also a strongly underlined aspect in the workplaces of today.

But how are students being trained in this respect at school? What is needed in order to be, or to become, active? In Chapters 3 and 4 I sketched some ideas of the concept of Students' Space. This concept has been formed by myself and I have preliminarily defined it as a mental or psychic space between the students and the teacher, which mainly is meant to be there for the benefit of the students. They might use it either collaboratively or individually. In this area the students might actively look for solutions to the problems of the object to be learnt and steer their learning process as independently as possible. I have assumed that this "free space" would promote active and conscious learning, and also collaborative learning.

I have been linking the concept of Students' Space to theories on activity by Vygotsky and Leont'ev, and to the concept of the ZPD and its various interpretations, but these theories have not answered my questions about

the nature of the students' active role and their opportunities of being active in learning. Consequently, in my mind, I have been asking questions such as the teacher's role in this space, the relationship between the teacher and the students, the extent of this area, and factors which influence its dimensions. I have been hoping that the data arising from this research might illustrate these questions. I have wished to recognise some indicators of this concept in the area of orientation in order to define better the concept and its characteristics.

Teachers are leaders of the groups of students - in one way or another. The space of the students depends to a great extent on the decisions of the teacher. Do teachers even consider this space vital? Most probably, the concept of Students' Space is connected with a new kind of teacher leadership in teaching and learning which is bound to a less strict framework of instruction.

My interest in the data has been twofold: First, I tried to discern issues related to freedom ("space") in instruction (of orientation) and arguments for them. Second, I wanted to figure out how the teachers possibly promote such a "space" in practice. Furthermore, its limitations and risks should be identified.

The methods for coding and analysing the data on Students' Space differed slightly from the rest of the study (see Appendix 10). For example, I handled the body of data as if it was from "one person" only. My interest was in indicators (ideas for coding them are displayed in Appendix 10) of this new concept, not in various persons in themselves.

The analysis showed no other common features of the informants but emphasis on the student's active role in learning, which already has come up in the previous chapters. The following observations of the study are based on a variety of scattered features. The account concentrates on signs of Students' Space, its challenges, its significance, and finally, on some theory about it.

### 10.1 THOUGHTS OF A TEACHER

One experience related by an informant might serve as an illustration of the probable area of Students' Space. For a longer period the teacher had felt uneasy about being perhaps too much the one who was doing the talking during the lessons, about being quite teacher-centred. She felt that it was "too easy to start offering advice" and reminded herself about how "a teacher speaks from her perspective only." On the other hand she added that "it is not easy to estimate how much assistance the students might need". The teacher was wondering whether this is a question of the level of real confidence the teachers have in the students. She was also of the opinion that the students need self-esteem to increase their activity. Her experience of orientation towards a lesson incorporates an implicit need to start doing things in a different way:

(224) "... the students [the scoundrel group] told me they had made their company introduction as a video. The lesson began, and they ran their video. The lads had done a really good job, a young man in fancy boots leaving home, throwing his bag into the back of his car. They had created a movie. The theme was the supermarket of X, an interview of the shop manager. They had done some editing and visited the place thoroughly; here cuttings between shop shelves, there interviewing the shop manager in his tiny office. All the things that were supposed to be in, were in. There was music in the background, and finally, they were shopping for some casks of beer themselves after the interview. The beer casks were thrown into the car boot, road music started, and the video ended by the cowboy riding towards the sunset in his tiny little car.

This was when I thought that I am a real f-o-s-s-i-l-e. It was just terrible. A week before the video I had already wondered what it would be like - I am just too tired of fighting with them because they are what they are. The video was absolutely fabulous! And they had gone to all that trouble! They had learnt a lot when planning it! Then I thought that I am a total jerk...



It was a success and I just said that I didn't have words... that it was fantastic. It was just... stunning.

I guess you should encourage them more to do what they want, have ideas of their own. When one of them is bold enough to make it [in his own way], others will follow."  
(F/12Apr95)

## 10.2 SIGNS OF SPACE

Several of the indicators that I have related to Students' Space came up in the data. They are presented here in dimensions of (1) methods or modes of working (including collaboration), (2) modelling (as a method; this will be discussed here separately, since it came up very strongly in this study) and (3) student-teacher relationship. Most of the following examples also reveal transformations.

### (1) Methods or modes of working

Some customary methods for improving student activity were discussions and thinking about various specific problem situations. At the outset of a new programme or thematic unit the students might discuss what they considered to be important topics in it, and the class could then proceed on that basis. Teachers may ask the students for their opinions and ideas:

(225) "Of course, always when you start discussing these with folks, you are asking them all the possible details. What kind of things should be considered and how to deal with them?" (B/27Apr94)

In the second round J who had not been initially acquainted with the theory of orientation, emphasised discussions with students: Students should be active participants in the orientation process. Her students also liked this way of working: (226) "I just had their comments on their homework, and it is apparent they like to study in this way, by discussing." (J/30Mar95)

E began with a (to him) new way of working, the "open-ended" collaborative thematic units, projects with working life. Neither the teacher nor the students knew exactly what was going to happen. E

talked about orientation, about how their project with the municipality of the city "X" (its section of social and health care) began:

(227) "And of course it has become obvious that the students in a way have got lost, and I must admit the same has happened to me and [laughs] to this colleague, too, to some extent at least (...) because you have to find your own way. And we think that it would be best if the students would as far as possible ... or that we would create the circumstances for them to find their own way (...) and it is useless for us to make it clear for ourselves and then for the students, [rather] that we are trying to create opportunities for them to find out themselves. We'll see how it works..." (E/12Dec94)

In the first round F out that she considers herself teacher-centred, but she began to put more emphasis on activity of the students rather than on that of the teacher. She jokingly told an example of one of her first situations where the students defined goals - simply for a single session at that point:

(228)

F I had a double lesson early on Friday morning, starting 8:45. I put this transparency on the overhead and asked what they were expecting from this double lesson finishing by 10:25.

L Yes.

F I listed all the expectations. There was one about learning something new, another about finding out the secret of a cheese-filled rye bread. They had had homework on why the marketing of such a product had been a disaster. Then one chap, a social individual, [said] that Savinainen would not come today. Savinainen was one of his classmates, I listed that too. Everything was listed. [laughter]

Yes, the fourth comment was that let's call the test off, and the fifth that the time should pass quicker. These were the five aims for the double lesson.

L And nothing else came up?

F No, they thought that those five things were all enough for a double lesson... and the class itself is active and hanging on, at least in principle. At 10:25 we had to finish, and I showed

the transparency again and asked them which expectations we had fulfilled? The first comment: Savinainen did not show up...[laughter]

At least one goal, [said I] what do you say about the others? So they said, well, we did learn something new, then there was another comment that the secret of the cheese-filled rye bread was revealed, and even the time went fast, but then there was one disappointment: the test was not called off. [laughter] (F/2May94)

In the first round F was also wondering whether the students could figure out problems on their own. Yet she was hesitant about whether she would have courage enough to put this into practice. In the second round F said that she had become a little more student-centred. She was trying to give less advice now. Teaching and learning was mainly bound to "own enterprises" of the students. Her students had begun to define goals for their learning and they had started self-evaluation. Both of these were taking place in collaboration (in groups).

## **(2) Modelling**

During the course of this study modelling became a tool of orientation for some of the teachers. Their students were also making models. "Ready-given models do not contribute to independent thinking", one of the teachers said. She spoke of the opinion of the students:

(229) "Yes, at least that's what they say, that you learn this better when you create a model of your own, that it makes it easier. (...) And they liked them ... enormously." (A/24Jan94)

A loose instruction for modelling was typical of this teacher (A). Another teacher talked about how she was just walking around and letting the students do their modelling undisturbed (H). The teachers that favoured modelling emphasised the crucial role of the learners' own models. The students ought to feel free to discard the model, to question it, or to construct a new one - provided that these decisions are well-

grounded. Some of the teachers pointed out that the students can learn from cooperative modelling as well as from their errors. The teacher may keep a distance:

(230) "... well, I did think sometimes, for example when they were making their model and thought what they could include, so I thought somehow that what the heck, they should not start to think of THOSE things. But then I thought that I am not going to tell them but they should understand it themselves and realise the mistakes they've been making in the work." (A/13Feb95)

In the first round D stated that teacher education had inspired her to give more freedom to students (see Excerpt 75). At first she began to listen more to the students when modelling, but she eventually forced their ideas into a picture of her own. Little by little she started wondering whether her pictures were any better than the ones of the students. This developed to a new situation where the students made their pictures and put them together in collaboration. In the second round D said that she now had more courage to give freedom to her students:

- (231)
- D "The fear is gone. I mean I am not so scared any more to get into such a totally different situation, like what I'd do if they did it their way and I had not thought of it like that. So I've got over it, sort of."
- L "What is the trick you have for not having fear, why are you not afraid any more?"
- D "One factor could be quite simply that as they have seen the system and I have told them many times that there are no rights nor wrongs, anything goes, everybody is teaching each other, they sort of accept it. And it is easier for them to accept, or at least I think so, that I myself do not actually know where we are going, or what it is all about."  
(D/30Nov94)

C's students worked individually in their practice enterprise. Modelling was typical. In the practices of C the students had been evaluating their models and activity:

(232) "And then this developmental evaluation of activity, the discussions together, and that these students would learn a kind of a culture, to evaluate things together. One creates different views, and to melt them together, it is important. I've tried to find out how I could encourage the students into mutual evaluation, as effective as possible so that I would talk as little as possible. I have not been the first to open my mouth and give my views and ask my questions. Although sometimes I feel that they are taking a wrong track, but they are anyhow discussing and giving their views (...) On the other hand, it feels bad to me that now they are thinking about wrong things, but they have, however, learnt a way to work based on discussion." (C/20Apr96)

### **(3) Learning culture and the student-teacher relationship**

The previous examples, particularly the example of C (232) imply something else, too: Modelling, evaluation and "space" could together contribute to a novel learning culture. The students are perhaps doing "wrong things", but the teacher tries not to get enmeshed in their workings. This aims at a developmental and collaborative learning culture.

In orientation, the teacher might take the role of a guide or a leader, and the learners would take care of the rest on their own, in collaboration. This idea occurred often in the data. G talked about how his instructions were getting established. He also tells about the phase of orientation:

(233) "I still feel strongly like a leader of the learning process... At first they often write what they know about the subject right then and then there are some learning materials and lessons and maybe something else. After this stuff comes the first evaluation about what they have learned or something like it.

You cannot do this alone. I've got a very good gang here. They are extremely active and want to do things. ... so always when a problem comes up they instantly team up, so you get buzz groups. It's nice to see that when problems arise at some phase they just start working. So when a new

story starts, the people automatically find their best assistants, their mates." (G/15Dec94)

In the learning process the teacher might give the stage to the students and make an effort to support them in a democratic way. The next example deals not only with the classroom climate and teacher leadership, but also with modelling. D tells about how she was happy with their new way of working:

(234) "Last week we had a really fabulous discussion. They made one of these SWOT analyses on wholesale trade and at first I thought that it would come to nothing again, but then we got this representation of the other group. And it was good even as a show, so they wanted to tell what they had been thinking about, and it started a lively discussion, "It cannot go like this" and "Hang on, let's go back". And I thought: "Just like this" that the subject is being passed around there, like how come this is good or bad, and why it cannot be changed. Yes. I thought that this is what I have been looking for. That is, finally there is something going on around this matter." (D/30Nov94)

### 10.3 THE CHALLENGES OF STUDENTS' SPACE

Space requires quite a lot of effort - from both the students and the teachers. Yet the teachers mostly were in favour of reform, at least if manifested gradually:

(235) "So, you perhaps once more see how conservative the students are, they just expect the teacher to give the guidelines anyway. I could imagine that it might be better to give more directives in the first lesson, to give more strict guidelines, but in the following lessons you could, within the constraints, gradually give more freedom to move around and have more independence. I mean slowly..." (F/29Dec94)

The challenges of Students' Space are reported here within four dimensions: (1) Students' attitudes, (2) Challenges with methods or modes of working, (3) Learning climate and the student-teacher relationship, and (4) Circumstances at school.

#### (1) Students' attitudes

The students' attitudes may be both for and against the new ways of working. The students liked the teachers' methods or modes of working (eg., Excerpts 226 and 229), but this was not always the case. Teacher H told how she started a course and did not "teach". Instead, she gave the students a task to think on their own about the area to be learnt and to look for the main points in it. The students looked confused at first, but the task worked. Another time, with another class, it went differently:

(236) "... during the first lesson, after the introduction, the students naturally expected me to tell them what the course was all about. I didn't do that but instead distributed a news article, a very good one, and then I gave them a task and told that hints could be found in the article. So I told them to look at the article and try to find points that they think would affect financing and payment transactions when a company selects its strategy. Then there was this woman, maybe 25 years old, and an awful blather arose, with things



like "This is a terrible thing, I have been teaching children at the lower grades and we first teach and then ask, but you do it the other way," came up. I said, "Yes, that's how I do it, just do it first and then we see what you've got." And then they did it in groups and got it ready, and we had a look at what they had done. Then we summarised all the things that they had found, and just everything that I had had in my summary was there. And then this girl said, "Oh, now I know all of them," and I said, "Yes, so you do, this is the contents of the course, these are the things you are going to discuss." But she was at once against it, "You cannot give us a task like this, as we know nothing"..." (H/27Jan95)

The teachers pondered whether freedom in instruction is in conflict with the students' sense of traditionalism. Some teachers had to struggle with the fact of students' expectations not being in line with the space-giving intention of the teacher. This made the teachers wonder whether it would be not easier to work in the traditional way, the way that the students are accustomed to.

(237) "The problem on our side in teaching is that it is difficult for the teacher, it is difficult for me, often it is so much easier to do everything myself, or in a traditional way, say, teacher-driven. And on the other hand I notice, and I am not happy for it, that the students are quite used to doing it that way as well, at least that's what I think." (E/14May96)

New methods may even conflict with traditionalism, thus involving risks for the teacher:

(238) "For the next course starting after this, I had actually thought that I might, if the other people agree, other teachers, I might do it actually so that I don't have a plan ready, so they [the students] could kind of think about it and then I could start thinking what to do and how to do it. But again, that is dangerous, because students are traditional and there has been talk about teachers who have not provided a proper program with every lesson explained in advance. This would need training of the students." (D/26Apr94)

Another teacher wondered whether modelling is "terribly difficult for the students, since they are so accustomed to the old system?" (J/19May96)

One teacher (F) was of the opinion that independent work requires a really motivated group, it does not necessarily work with "suckers" (immature students). It requires critical learners - real adults - who are able to question things.

Problems in students' collaboration were not excluded either. The students of A made different models which they were to put together. The situation developed into a row, yet A did not intervene, but let them rather solve the problem by themselves:

(239) "... they had a hectic, if not violent, discussion about it. And the only sort of role I chose to play was that I was attending their meeting." (A/22Nov94)

It is not unproblematic for the students to receive or take the space available. They often come from other traditions where the space has not been so obvious and where activity and consciousness have not been emphasised. It is "deep-rooted, the expectation: When are you going to start teaching?", as D puts it (see also Excerpt 240), and the students still might be expecting "a correct answer" (Excerpt 241). Nevertheless, the students' attitudes are changing (Excerpt 242).

(240) "I think the most difficult thing is to make them understand in the very beginning that they can use some space differently from the one set by the teacher; they sort of long for a clear enclosure." (D/24Jun96)

(241) "Sometimes even a certain kind of conflict arises from the fact that in the school world, traditionally there is only one correct answer. In real life, there is one answer to every question. You can never tell if it was the best answer. But the students have it so deep inside them that if I give them the space, they seem to be sort of missing something; whether this answer was better than the other one. But I cannot tell, can I. In five or ten years maybe you will be able to say that this one was better than the other one, but not here and now." (B/10Apr96)

(242) "Always when we start a new type of activity, and the teacher directs the situations quite a lot, at least in the beginning, you can feel a reflection of uncertainty in the diaries [in learning logs] - what is really going on? Many times I have brought up the question whether it would be better to go back to the old system, but that is not what they want - it [uncertainty] wears off with time." (C/20Apr96)

## **(2) Challenges with methods or modes of working**

When a teacher lets the individual opinions and choices of the students come up, unexpected things happen. The teachers underlined flexibility in this, but they also sensed risks and tried to avoid them:

(243) "The unpredictability of the orientations, or orientation bases, I try to limit it, so I do not get very bizarre ones." (F/29Dec94)

It is not that simple to find solutions to the unexpected. It takes time:

- D (244a) "... as you imagine beforehand how things are and how everything would go, and it went just about so, but then when something totally different comes up, quite out of the line that you have committed yourself to, how do you react? What do you do in a situation where a student presents something that ruins all your structures? And are you able to connect it with something or do you just ignore it and think that it is actually totally irrelevant. And do you adapt to it quickly which at least takes a tremendous amount of training and understanding ... that you should not be too attached to your own systems."
- L "Do you have any solution to when a student says something you have not expected ... "
- D "Haven't found one so far. Maybe it comes in that you learn to be sort of more flexible ... when you think of everything that ... maybe it is so that you are too limited yourself ... whatever the subject may be ... this is how I think and then I cannot put anything else in my pattern ... there is a chance of learning, yes..." (D/17Mar94)

In the second round she (D) had found an idea:

(244b) "And an idea I also used in the beginning was that I always arranged the thinking sessions so that I left them alone. After the presentations I never had time to come back to the subject but I took their papers and their transparencies with me and thought it over, and I was very smart the next time. So it helped me to come over the situation about what to do when I could not think of anything clever."  
(D/30Nov94)

Teachers tried to make the students discuss their solutions and express their opinions. They pointed out that differences are accepted and to be expected. The results, however, do not always meet with a teacher's expectations:

(245) " ... I have tried to say that all groups need not have the same answers, but it depends ... They sort of accept the confusion in the beginning and start sketching the image from one end. And if they hear what the next team is discussing, they do not care. You just start building your own model. I have tried to encourage them to trust themselves, that there may be many different correct answers. (...) Did I expect to get some more analytic responses ... most just tried to put a minimum effort into it ... (F/12Apr95)

### **3) The learning climate and the student-teacher relationship**

The list of challenges was long. "The students need stimuli." - "You ought to engage every student, you should make them feel dedicated." - "The quiet ones ought to be considered." - "The teachers ought to live according to the group. They should accept the diversity amongst people." - "People should not be put in chains."

The list continues: "You ought to know the students better." - "You ought to have more confidence in the students." Respect for the students is needed. One informant told of a colleague who had made her students

work without any earlier basis. Afterwards she just stated what would have been the right answer or performance. This made the students feel - as they related later - helpless and embarrassed. The informant (F) expresses her opinion of this: "This cannot be the point." A trustworthy relationship and knowledge of human nature are needed for a successful implementation of new systems:

(246) "... to find a motivation, I should find a kind of a trustworthy relationship with the students. That they would not all the time be raising questions about why we do it like this. Maybe I am thinking that the whole thing would be easier for me in that way. And if I have to keep explaining why and what for, it is harder work for me, you see. (...) I guess I should sort of sense the class spirit pretty well then, recognise what the students are as persons. How you can treat them as individuals and as a group. The question must be very much about human relationships, communication, skills in the handling of people? (F/2May94)

#### 4) Circumstances at school

A large group of students (as they often are in the polytechnic) may be an obstacle of creating space. If, furthermore, orientation is restricted only to the beginning of a thematic unit, all the students may not get acquainted with the topic within the short time available. This is particularly the problem of the quiet ones, as the more talkative persons dominate and people are often shy of one another. Discussions and further expansions of the theme in small groups might help in this, as F points out. With flexible methods "tight schedules are not good." (C/20Apr96). Furthermore, learning arrangements at school may render space-giving more or less impossible:

(247) "One problem in our school is that we still have the texts and we have the whole course, all the texts and most of the exercises, we have them ready before the course. And the students buy the copies in the bookshop. So actually if they had some good ideas which would be more vital, something that has to do with the topic, but has not been [inaudible] so I could deal with what they are more

interested in. But now. I don't have a chance. I cannot do it because it is not accepted." (D/26Apr94)

These days the Finnish teachers even meet cultures from various countries where the power concept may be different. A teacher had (exchange) students from France in her group:

(248) "And this one [Finnish student] started arguing with me about something and I looked at the French ones, they were wondering how someone could say such things to a teacher. They told that we have a relationship between the teacher and the student totally different from theirs. They feel terrified when a student steps on the teacher's toes. I did not think that was what was actually happening, but their system is so very different.

(...) I think, frankly, that the foreign students, they have sometimes just watched, "Please tell us what the correct answer was." My own students do not expect this, they are used to me being strange. But I felt quite clearly that these French lads we had, they were sort of left uncertain about what we were actually doing because I did not say what was right." (D/24Jun96)

#### 10.4 SIGNIFICANCE OF SPACE

Freedom of "space" in instruction may have a fruitful impact on (at least) three areas, (1) the students themselves, (2) collaboration between students, and (3) increasing activity.

##### (1) Students

The teacher informants often mentioned *independent thinking* and *decision-making* as being essentials to learning. "Even thinking is in itself an achievement." - "Learning arises from the person himself or herself - an ideal could be a child-like style of learning." When one receives space and responsibility, one also needs to accept the pain included. This is a step on the path towards a growing independence. *Student initiative* came up in several cases. When students are doing models etc. on their own, they have an opportunity to *notice their mistakes by themselves*.

If the students are given control over their learning situations, the situations may appear more meaningful to them. Freedom in instruction thus may add to *motivation* and increase the *courage* of the students to express their opinions and problems. Feelings of *self-esteem* might be increased by experiences of success.

(249) "I think it [freedom] must be given. Because if I squeeze it into a mold, I am sure the motivation will suffer. (...) I think everybody needs to be accepted as a person, and his thoughts accepted, too, and I would like to stress the very idea that everybody would even later join in by saying "I have this idea, how about it?" Or that you are not ashamed, either, of telling that you don't understand what you are supposed to do. I think I never had the nerve to ask when I missed something as a student." (D/30Nov94)

(250) "... if you could just once succeed in this job from the students' point of view, and they could feel like succeeding themselves, I guess they would like to continue with it and it would strengthen their self-confidence." (F/2May94)

## **(2) Collaboration**

Collaboration came up, for example, in "own [fictional] enterprises" of the students (C, J, F), emerging projects with working life (A, B, E), evaluation (C, F, G), and models by the students (A, C, D, F).

Collaboration, as bound to "freedom" of the students, seemed to foster *collective responsibility, genuine group formation, and mutual assistance*.

The responsibility became visible, for example, when the students experienced collective pressures to manage a new situation. They were genuinely forming groups and seeking help from each other when problems came up. Furthermore, collaboration adds to *understanding* (comparing various understandings).

(251) "In a way, individual orientation bases give space to creativity, and you come to think of it from many different points of view. But then again, if there is a common one, you could also see how people have different views on the same thing. You could think here as well that common and individual views could be useful, one at a time."

(F/29Dec94)

## **(3) Increasing activity**

During the study the students of the informants began making models, running (fictional) businesses "of their own", or working on projects with real companies. Some of the teachers implemented portfolios, learning logs, and personal learning contracts with the students. Some of their students particularly emphasised their own solutions, and some of them clearly announced that they prefer their own solutions to those of the teacher.



### **10.5 SOME THEORETICAL ASPECTS OF THE CONCEPT OF STUDENTS' SPACE**

The concept of Students' Space can now be defined as a mental or psychic area in teaching and learning, where students may - and are even expected to - move freely. They make decisions about the object of learning and about the means of approaching it. Students' Space is meant to contribute to the meaning of learning, to enhance the initiative and independence of the students, to strengthen their courage and self-esteem, to promote their conscious thinking and activity, and to encourage collaboration. All of this involves challenges that deal with attitudes, ways of working, learning cultures, the student-teacher relationship, and circumstances (organisation, arrangements) at school. Pushing further the borders of this space in order to extend the area of liberal choices may add to the discomfort of the learners, and to their uncertainty as well. The means of providing this space are broad. At one extreme it can be offered just in instructional discussion, and at the other extreme the students may have more or less complete autonomy in learning (for example, practice enterprises). In the end, this is rather more a question of attitudes - of both the teacher and of the students - than of methods. All this means moving towards a new kind of learning culture, a developmental and collaborative culture.

In the course of the study the teachers became more aware of this kind of space, and of the promotion of activity and collaboration. Because the students were not the same individuals from year to year, the transformations can be regarded as signs of the teachers' appropriation in leading and managing new kinds of learning processes.

The analyst will not claim that the perspectives of the teachers will have changed completely, but at least the transformations are signalling a break with their ideas of learning cultures and learning concepts of the past.

When compared to the situation in business education at the end of the 1980s and the beginning 1990s, a transformation can be discerned. In their studies Haavisto (1990, p. 85) and Miettinen (1993, pp. 171, 235-241) stated that teachers were modelling, not the students, and the entire activity of instruction was still quite teacher-centred. The teachers of this study were clearly favouring the students' activity in practice.

## 11 DISCUSSION

### 11.1 FINDINGS OF THE STUDY

(252) "I have changed (laughter). I don't know. Well, occasionally I have felt more satisfaction with my work now, it has been growing with this ... when I have figured out what this thing could be, how it could be implemented. And sometimes when you do succeed, maybe not too well, but somehow at least, you get strenghtened in it..." (E/14May96)

(253) "I frankly confess that orientation as a concept was quite vague. Now, over the years, it has become more distinct little by little." (C/20Apr96)"

The research problem of this study was to figure out how nine business teachers interpret and appropriate the concept of orientation, how their notions of the concept are changing, and what is the effect of the notions on the teachers' practices. The sub-problems concentrated on the subject, the object and the tools of activity (Figure 13). Ideas about the focus of the study emerged during its second round only.

The results show not only some features of orientation common to all the participants, but also quite a number of scattered or disparate views. With respect to sub-problems, tools and mediation were manifested strongly in the results, whereas representations of object of activity remained modest. The subject of activity was illustrated mainly by the attempts to theorise my concept of Students' Space.

The teacher informants' expressions of dedication, their conscious thinking about the issues of the study, and their transformations during the study make me assume that the study meant a kind of extension of teacher education for most of the participants who had been studying at the FBC in the beginning of the project. For the two experienced teacher participants, it seemed to be a small developmental project as well.

The main findings of the study were as follows:

- 1) Orientation did become a tool of instruction of the teachers of this study. For most participants orientation became a regular tool, and even an important instrument. This was particularly emphasised by the informants at the end of the study (Section 9.7).
- 2) Notions about orientation and its characteristics became richer during the course of study. Towards its end the participants generally shared notions of orientation as something that (1) implies direction, (2) gives an overall view of the object to be learnt, and (3) assists not only in organising the contents to be studied but also in (4) staying with their core idea. However, most of the notions were individually tuned. The detailed accounts of the functions and characteristics of orientation showed that these were many-faced and conceived differently by the participants.
- 3) In the beginning of the study most of the teacher informants related orientation only to the outset of the learning cycle (Engeström, 1981, 1983, 1994), but this notion changed over the course of the study. By the end, most respondents had reached the notion that orientation extends over the entire learning cycle. However, when discussing this cycle or spiral in detail, the participants mainly presented aspects of orientation related only to motivation and evaluation. Links to motivation and evaluation were not presented by all participants, which was again a differentiating factor between them. Links to other learning actions were missing almost completely, or at least they did not clearly manifest themselves.
- 4) Orientation was conceived as a tool for recognising principles of a phenomenon to be learnt, for sorting out its features, or for discerning its core idea or ideas. These things may take place by modelling and here a polarity appeared: To some teachers this meant things in the mind (in

thoughts) only, whereas some were using tangible models alongside of the mental ones. The assertion is an interesting point from the perspective of teacher education. Tangible modelling has been stressed in our programme, but it was not an overly evident tool in the practice of these teachers.

5) Over the course of the study the teachers generally seemed to strengthen their opinion that the students ought to have an active role in orientation and in the entire learning process. The active role of the students was particularly manifested in analysis of the concept of Students' Space.

6) Activity theory and the concept of activity were interpreted with some uncertainty by the participants. The interpretation became, however, slightly richer as the study progressed. Similarly the notions of the object remained obscure; the role of the object in activity, particularly in orientation, was not underlined (Leont'ev, 1972/1981, 1978).

(Consequently, this study did not come to present any particular findings as to the representations of the object of activity, which was one of the aims in the beginning.) Since the principles of orientation derive from activity theory, the diffuseness of interpretations might offer one explanation for the problems the participants experienced in orientation.

7) During the second and the third round of the study remarks about collaboration at school between teachers could be discerned. The teachers seemed to work mainly alone, and the comments on collaboration (mostly expressing the lack thereof) may explain the the teachers' individual features in this study.

8) My perception of transformations in the researchees' thinking and practices in the course of this study indicates the following pattern:

At first, orientation is a new concept causing ambiguity and feelings of uncertainty, even of anxiety. After a time, an awakening to the phenomenon takes place. For example, orientation is perhaps recognised as having been used even in one's earlier practices ("I only did not have a name for it."), or it proves powerful in instruction ("It was like a flash to me!").

The teachers begin to conceive orientation as belonging not only to the beginning of a learning process, but to the entire process. Detailed linkages are, however, limited to motivation and evaluation only. The teachers begin to think of modelling as a tool - some approve of tangible models, some discard them. In teaching and learning, the active role by teachers is changing towards giving way to an active role by the students - at least as an ideal.

Appropriating and establishing these new ideas or concepts takes time. This is intertwined with everyday practical problems as well as with hopes of collaborating with colleagues and with changes in the organisation of work at school.

After a while, new questions - in this study mainly personal or individual - are emerging. This study ended in the stage where the teachers were sensing minor new discrepancies: There was something wrong with orientation: it was no longer "enough". Motivation has to be considered more strongly as bound to orientation. Modelling remained problematic ("I feel unsettled!"). The journey towards the germ-cells was difficult. One was pondering whether to make tangible models all the same. One felt totally stagnated ("I need new ideas for orientation."). A need to learn more about orientation was emerging ("I want to know more of pedagogics.") Wishes of collaboration were still there.

Orientation was no easy phenomenon to be grasped. The teachers seemed to arrive at the borders of new zones, to their zones of proximal development.

Some of the aspects above will now be discussed further: individualism of the teachers (Section 11.2), modelling (Section 11.3), active learners in the light of the Students' Space (Section 11.4), activity theory and the object (Section 11.5), and collaboration at school (11.6).

## 11.2 VARIOUS APPROACHES OF THE INFORMANTS

Although the teachers shared quite a number of ideas on orientation, their individualism was notable. They were constructing their own combinations of the features of orientation. Signs of their particular notions could be distinguished as early as in the beginning of the study; later on they expanded and developed some additional nuances. However, they were not changing fundamentally.

An indicative summary of the main characteristics of the teachers with respect to orientation and activity theory is presented in Table 6. (Appendix 32 includes a more extensive summary of the main characteristics derived from the accounts of the participants.) Table 6 displays a reduced interpretation by the analyst, based on the reports in the Result Chapters (and on Appendix 32). It indicates whether certain items clearly existed with separate informants.

The interpretation in Table 6 considers (1) object-orientedness (whether the object of activity has been distinctively emphasised by the informant); (2) notion of the object (whether the object is distinctively conceived as a large activity system of working life); (3) emphasis on a way of thinking in the students (mainly a "working life" way of thinking); (4) tangible modelling as a particular tool of instruction, (5) the modification of tangible models, (6) the (active) role of students in practices of orientation, and (7) a typical challenge (somehow bound to orientation) of the participant; the typical challenges may signal zones of proximal development.



	Object-orientedness	Object= large activity system	Emphasis on "the way of thinking"	Tangible models	Modification of models	Active role of students in orientation	A typical challenge ----> ZPD?
C	X	X	X	X	X	X	Search for the germ-cell
E		X*				X*	Search for ways towards orientation
B		X	X				Promoting the students' activity
G		X	X			X	Looking for one's place in the variety of pedagogics
D				X	X	X	Search for collaboration
A				X		X	Modelling
H				X		X	Motivation
F				X		X	Confidence
J				X		X	Need of knowing more about orientation

\* moving towards

*Table 6. Aspects of orientation emphasised by the teacher informants  
(within their accounts of orientation) (simplified)*

Based on a general surveying of these reduced features, I am suggesting that there are two trends to be seen in these teachers which enhance student's activity (1) towards activity systems of working life and the corresponding way of thinking, and (2) towards active modelling as a particular tool of learning activity. Both trends, towards object (1) and towards mediation (2), have been underlined in the FBC Teacher Education programme. Both of these trends manifested in this study also involve the trend towards an active and conscious subject. This assertion can be considered as *a petite generalisation* (Stake, 1995; see p. 143 in this thesis). To attempt a more extensive generalisation more research would be required.

We will now go on: Based on the accounts from the research report, illuminated by Table 6, the teachers may individually be characterised as follows:

*"Modelling and modification" (C)*

The students actively orientate by modelling and remodelling the object of activity. Activity means large activity systems, particularly practices of working life. Modifications aim at finding a germ-cell model.

*"I have changed" (E)*

The teacher is in the process of getting acquainted with orientation. He is particularly searching for means contributing to the students' activity and ability to take initiative and to orientate towards practices of working life.

*"Towards a way of thinking in working life" (B)*

Orientation is to create a way of thinking, typical of working life, in the students. Practices of working life are the vital object of learning. The teacher is looking for means of adding to the students' activity in learning, thus in orientation as well.

*"Orientation is development" (G)*

Orientation is a means to promote (and is part of) development. The account of development also includes activity of students and connections to large activities in working life. Among the variety of pedagogics, the teacher is searching for novel ways to develop instruction.

*"Drawing and exploring with the students" (D)*

Orientation means grasping the nature of a phenomenon under study. The teacher is an investigating partner of the students in the process of drawing and discussing. Collaboration with colleagues would aid the development of this method.

*"I still feel unsettled" (A)*

In orientation the creation of good models, and their sensible use, constitute a continuous challenge. Models ought to be uncomplicated in use, and they ought to be developed by the learners themselves.

*"This is what it is all about" (H)*

Orientation is systematic directing which involves organising the contents and the parts of the whole, thus also understanding the whole.

*"More trust and confidence " (F)*

Though not specifically "taught" about orientation, the teacher quite soon figures out basic ideas of orientation. She focusses on developing various methods for enhancing her students' activity and initiative taking in particular. The teacher works hard but she does not easily believe in the positive results she has achieved. She seeks more confidence.

*"I want more pedagogics!" (J)*

The teacher was not specifically "taught" about orientation either, but by the end of the study she had become acquainted with the basic ideas. She is doing reforms in a more subdued way, yet is truly affected by the idea of orientation. She now wants to learn more of orientation.

A positivist might argue that none of the combinations by the informants is perfect if compared to the theories of the FBC Teacher Education. Yet this kind of judgement would not be adequate nor justified since we deal here with a diffuse and complicated issue. Orientation is a large phenomenon with a variety of dimensions, as can be seen in the research report, so individual emphases are to be expected. It is not easily appropriated within a short period, such as a one-year teacher education programme.

(254) "In this teacher education I had the same feeling as I had when studying in that course on pedagogics at the summer university. The course started in the beginning of June and by the middle of July it was over. Two exams a week, on Monday you did not remember what exam you had had on Saturday, you had got that much new material already. Nothing stayed in one's mind, or anyway just scattered topics. It is the same with teacher education. Although there were long breaks in between, the intensive periods were really intensive." (H/13May96)

People generally tend to have their own ways of organising the world around them and of adopting issues which are vital just for them. These notions each have their own histories, and different everyday environments have impact differently on people. We should be well acquainted with the lives of the informants of this study, for example their life histories and contexts so as to understand the individual combinations in their accounts of orientation. The number of the possible reasons for their differences is certainly large. An analyst, as an outsider in their lives, can only present some suggestions based on this study. These suggestions deal with (1) the accounts of activity and object and (2) some features picked from the environments of the teachers (collaboration). They will be discussed in Sections 11.5 and 11.6.

### 11.3 MODELLING

In a good orientation process one becomes more aware of the object of activity, of its vital properties, and of how to advance to it. An orientation basis constitutes a foundation of orientation. In the end, orientation bases are constructions in the mind, and the tangible models are meant to be tools for thinking, and further, for acting (Gal'perin, 1989b). When an orientation basis is put into a tangible model, the image in one's mind is "stopped" for a while to be moved, for example, onto paper. When being used in collaboration a tangible model may contribute towards "combining several minds", thus to making collective investigation easier.

Thoughts keep streaming within our minds whether we have deliberate orientation bases or not. What difference does it make then? The answer is: consciousness. With the help of orientation bases we consciously take a phenomenon, or a part of it, into particular consideration; modelling ought to support the thinking and consciousness.

Davydov's theory (1982; 1988b) about the forming of theoretical concepts, "ascending from the abstract to the concrete", aims at a clearer and more conscious comprehension of the object. In practice, modelling may also lead to another outcome: The process of modification ends up with a highly complicated model. The complexity may cause resistance among the users of the model, unless they know its history. A complex model, presented ready-made, may become a real obstacle for learning, whereas a model produced and completed by the users themselves, even if complex, may function in an opposite way by reminding them of the important points the user has already become acquainted with. This is a powerful argument for the students' own models in learning, which was underlined by those teachers of the study who used (tangible) models.

With complicated models, one can ask where the germ-cell is embedded. Shouldn't the germ-cell be the ultimate product of an orientation process?

C was the only informant who deliberately concentrated on modelling and modifications in a Davydovian manner. In C's opinion the route to the germ-cell is problematic. In the course of the study he had advanced with his students from prototypes and advance organisers to algorithms, and later to systems models, but not yet to the germ-cells. On the contrary, the models rather seemed to be quite complicated. "It takes time", C said when asked about this. It does not only take time to come to the Davydovian ideal: Most probably, a Davydovian process also requires a basic understanding of his theory and of the role of object in activity theory. For example, C was getting better and better acquainted with these theories, and he even had particular learning arrangements (environments) made available in his school.

It is somewhat confusing that even a long process of modification does not end with the "final product", the germ-cell. Nevertheless, this is in line with remarks by Engeström (1994, p. 66) about the demanding creation of the germ-cell models. One point is important as well: it is not only the outcome of investigation, but also the process of investigation that is necessary. The modifications need that process.

Modelling is meant to contribute to orientation, yet tangible modelling also involves risks. Models are not fine for everyone. Even the word "model" as such might have a strict undertone, thus perhaps causing antipathy. Some of the informants did not use tangible models. They may have considered models too stiff and complicated and so preventers rather than promoters of learning. Nevertheless, they had ideas of models in the mind (mental models), since they were speaking about "a way of thinking" or a "vision" when referring to the concept of orientation.

Since orientation is a living phenomenon, activity directed to (another) activity, models should also be flexible (see, e.g., Engeström, 1994, pp. 58 and 73-75). Some informants pointed out that in practice there is not

enough time to develop and re-develop tangible models - unless it is made a particular way of working as in C's case.

If modelling and proceeding strictly according to the models take the main roles in instruction, flexibility is put aside: the external forms of models steal the scene. The Davydovian ideal about focussing on the object of activity is perhaps neglected and left aside, and the same happens to the vital role of mental orientation, the ideal of Gal'perin (e.g., 1979). Modelling becomes an end rather than the means. This risk corresponds with the arguments by Miettinen (1993, p. 241) who articulates that orientation should be rather constructing a way of thinking than presenting various models of orientation bases.

Although the orientation bases of the informants were typically models formulated as figures (drawings and charts) they also included other representations, for example cases and role-plays aimed at revealing crucial elements of an object. This was in line with the definition of models by Wartofsky presented above (p. 97): anything may be the representation for an issue in one's mind.

I did not particularly analyse whether these various types were prototypes or advance organisers or some other types of orientation bases (Engeström, 1984, 1994), although this would have provided an additional interesting aspect to this research. For example, cases and other large "real-life" examples are often regarded as prototypes, but in this study they also seemed to provide principles and essentials of a phenomenon. A more extensive examination of orientation bases would have changed the perspective of the study towards modelling and its aspects. My choice was for the phenomenon of orientation.

Tangible modelling is a helpful tool in instruction - this is also what most teachers of this study experienced - but its risky aspects ought to be considered more strongly, including in teacher education.



The notion of models and where they exist may be vague, as a small example picked from the data shows: One teacher said that "rather than making a garden cottage according to a model, it might be nicer and more satisfactory to build it without a particular one." In fact, the cottage will be built according to a model, if only a model in the mind. The relation between mental models and tangible models in orientation is complicated. It requires further attention, and perhaps investigation.

#### 11.4 ACTIVE LEARNERS AND THE STUDENTS' SPACE

Activity of the learners was manifested in the analysis of the concept "Students' Space". The analysis showed indications of a teaching and learning culture where the learners are the focal point who are offered space to steer their own learning processes. The teachers of this study quite often provided such a role to the learners as Engeström (1994, p. 75) argues for:

"At its best, studying can be compared to the work of an explorer. The student conquers an unknown territory of knowledge and skills. Sadly enough, far too often the student's toil resembles more the alienated work of the explorer's paid bearer. Like the bearer, the student feels it makes no difference what territory he or she is covering."

Though the concept needs further theorising, it can to some extent be defined. Students' Space is a mental or psychic location or area that provides the subjects of learning (better) opportunities for being active and conscious. This space requires mutual trust and responsibility from all participants - the students and the teacher - of the learning process. The space may constitute a new kind of learning culture which will require leadership skills of the teacher. It is about steering a process without really "steering" it and, at the same time, subduely supporting object-orientation.

The data showed that many teachers of this study were ready to provide a considerable amount of independence to the students. The concept of Students' Space can be related to some of the interpretations of the Zone of Proximal Development that have been discussed earlier in this thesis. In a manner similar to the "construction zone" by Newman, Griffin and Cole (1989, p. xii and 61), Students' Space may be labelled an area of synergy of people and joint activity. When having the freedom to make their own decisions, students may better see the "opportunity of a more advanced way of working" that Virkkunen (1990, p. 182) pinpoints. I am

rather cautious in relating the Students' Space to some other notions about the ZPD. Ideas by Bruner ("scaffolding") (1986, p. 73-78), Levine ("strategic assistance") (1993, p. 306), and assistance by Tharp (1993) and Tharp and Gallimore (1988) possibly involve an undertone of the teacher's dominating role, a role which is too dominating to be good for the ideal Students' Space (at least in adult education).

The concept of Students' Space is to be related also to some other "space" concepts. The concept of the "Third Space" by Gutierrez, Rymes and Larson (1995) deals with intersubjectivity, power and social spaces in the classroom. It is a space shared by the students and the teacher. Quite often the students take this space by themselves without the corresponding intention by the teacher. In this "Third Space" the teacher's world is no longer the only dominating world, so that the traditional roles and scripts in the classroom shift (*ibid.*, p. 468). These features are mainly in accordance with the concept of Students' Space. Both of these spaces are terrains that aim at relinquishing "traditional notions of power and the need for rigid and structured power relations as requisites for learning" (*ibid.*, p. 469). The "Third Space" is a common space of the students and the teacher, whereas the Students' Space is mainly meant for the students. The "Third Space" is taken by the students on their own initiative, whereas Students' Space, as conceptualised in this thesis, is offered them. More preferably still, the space should be (self-evidently) considered to be there for the students.

The creation of meaning is the most characteristic feature of the concept of the "Third Place" by Kramsch (1993). Two worlds, the one of the students and the one of the teacher(s) meet with one another. The students look for a meaningful place of their own. The teacher cannot know or define what it is like - the place is too individual for that. As with the "Third Space", we deal here with the students' autonomy and control - typical of Students' Space. Both the "Third Place" and the Students' Space are areas for the students' own purposes in learning.

### 11.5 INTERPRETATION OF ACTIVITY THEORY

In this study I tried to draw out the respondents' notions of activity theory, activity and object. (I even aimed at understanding whether the informants conceive the object as activity or as action (Leont'ev, 1978). This task, however, proved to be impossible, because I did not discern clear indicators of that.) The interpretations by the informants contained elements of activity, but a clear notion was not distinguished. The same concerned the object: the informants' conception of the object did not emerge clearly. Several of them talked about direction in orientation, not about the object-orientation, "the basic characteristic of activity" (Leont'ev, 1971/1981, p. 48).

I would like to argue that if these notions were more conscious or distinctive, a deeper understanding of orientation might be attained and many of the problems of orientation presented in this study would be more easily solved. Clear notions of object and activity are, however, difficult to be achieved. Appropriation of activity theory needs time. When asked whether we should underline its idea more strongly in teacher education, one of the informants replied:

(255) "... I think it is like the forming of a group, you need to go through all the phases, though. But perhaps the process would be a little bit easier, or simpler, or quicker, if you don't have to tackle everything on your own."  
(D/24Jun96)

## 11.6 COLLABORATION AND THE ENVIRONMENT

The three elements of activity according to Vygotsky (Figure 2) do not explain activity adequately. Activity is also ruled by the environment: rules, community and division of labor (Engeström, 1987; see also Figure 5).

Most of the teachers of this study have quite ordinary ("traditional") teaching and learning environments. They are usually bound to the time schedules and organisation of their respective schools, as well as to fixed learning concepts and curricula. Occasional but not systematic collaboration is typical of these environments. Teachers are often alone, as were several of the teachers of this study in their schools. The lack of close collaboration might be one reason why major new ideas did not emerge during the later phase of the study. Particularly in the second round, aspects of the school environment and collaboration began to appear. The (student) teachers had worked mainly in a collaborative practice while in teacher education, but this common context was no longer available in the second and third rounds.

Collaboration might contribute to the strength people need in conditions of changes and dynamic development. When you work alone, nobody keeps reminding you of novelties. Nor does anyone promote them. Nobody shares in successes or difficult moments. Without any particular support and stimuli, one may even revert to old routines. The data included accounts of collaboration: common projects, sharing ideas, and mutual assistance. Nevertheless, collaboration did not seem to be organised nor established, and often pedagogic issues were not taken overly seriously amongst colleagues.

### **11.7 TRUSTWORTHINESS AND THE SIGNIFICANCE OF THE STUDY**

This study illuminates one of the possible perspectives uncovered in accounts of orientation. The informants themselves verified its results as being plausible and corresponding to the data and their views. The data supplied by various informants and other data sources satisfactorily supported each other (student teachers, the experienced teachers, students, and the documentary material). In a longitudinal study it was also possible to discern how several findings repeatedly arose. The findings do not contradict earlier theories of orientation either.

Several interesting areas which emerged in the study had to be left without closer consideration, for example emotional issues such as feelings of being worried, of stagnating, of being mixed-up and uncertain, as well as the implications of strong attitudes and humor. It might have been possible to study perspectives other than those of the committed teachers: perspectives of the students only, or perspectives of teachers in general. The latter would have lead, most probably, to a broader, but thinner, variety in findings. With respect to the Chapter on Students' Space in particular, it could be asked why students were not investigated in more detail. Of course orientation could have been considered exclusively from the students' point of view. However, because this study concentrated on the teachers' world, the focus was not shifted towards analysis of the students. Furthermore, the data on modelling was quite rich. Modelling also might have been the leading idea of this research: cognitivism, basic ideas of modelling and the making of orientation bases in practice might have been the central issues.

Orientation is a less-studied phenomenon in an activity-theoretical framework. Its interpretation is diffuse. Accordingly, there has been dissatisfaction with practical results. Yet, on the other hand, orientation has been a helpful concept in instruction and therefore is considered

meaningful. Research on, and operationalisation of, orientation have in the past dealt mainly with young children and not with adult education. The latter, however, was the main field of work for the respondents in this study.

Vygotsky himself did not deal with the concepts of tool and mediation thoroughly (see, e.g., Bernstein, 1993). In the Vygotskian extensions of the past few years a considerable discussion about mediation has been developed. Tools or instruments of mediation have been one focus of this study - in the form of models and orientation bases.

The study can contribute to teacher education in particular by illuminating the relationship between theory and practice of activity-theoretically-based instruction. It reports on how a complicated phenomenon is taking root in the practices of teachers. It has identified some fertile points in this process, and also where the process does not flow in accordance with the ideal - where the process turns nebulous. As it is a teaching tool, orientation serves every learning process, not just in business education but in general.

The transformative features of these nine teachers can help other teachers in identifying their own process. "Most find a commonality of process and situation. It startles us all to find our own perplexities in the lives of others." (Stake, 1995, p. 7) The study may help to identify seeds for any teacher in his or her own zone of proximal development.

## 12 CONCLUSION

Orientation is a lively and slippery phenomenon. It is difficult to grasp: to keep in mind simultaneously both the core of the object and the process of investigation of the object. This involves a contradiction. The level of complexity varies over time. This is due to the process-like nature typical of orientation. These carry the risk of losing one of the basic ideas of orientation, the search for the germ-cell. On the other hand: if the core alone is being stressed, the mere essentials of the system might overcome the process. When thinking of direction only, and putting active doings aside, the process may even come to a stop.

The problem embedded in the object is the need to be aware of it - but the object itself is moving and easily disappears. Some people might say that in the end the process is the most important - but what is a process without an object? Some perhaps do not mind even if orientation disappears. The process of doing seems more important than the core, the object. The idea of the focal role of the object is thus lost, and, simultaneously, an alignment with activity theory. Both of these ends entail their own risks, and you move on a sharp edge: On your left you can see the process and on your right the core. Both views are essential.

One general conception is that orientation is a simple phenomenon involving nothing but making a figure at the beginning of a learning process. This study has confirmed that the variety of interpretations and practices of orientation which exist is extensive. It has also shown that there is no fixed theory on orientation which is appropriated completely by teachers. Orientation is a multi-faced phenomenon with multiple meanings. Yet this variety can be traced back to the earlier theories of orientation.

The search for the essentials of a phenomenon is a long process, as is the process of understanding the principles of orientation. At the outset of learning it is possible to make an outline only. In this process that Davydov (1982; 1988b) described precisely in his theory, in the conscious



search for the core, the core little by little becomes visible. Finding the core (and meaning) of orientation is a Davydovian process in itself where the activity of orientation is the object. One support on this path of learning may be a more conscious attitude to orientation. It need not always to be put forward externally. It is rather "orientation (always) in my mind" in accordance with the ideas of Gal'perin (1979, 1989, 1992).

It seems to me that in appropriating of orientation, it would be helpful to consider the large activities more thoroughly, as per the ideals of Leont'ev (1978; 1981), Engeström (1987; 1995) and Miettinen (1993). Also emphasis on the idea of object may add to the appropriation and enhance understanding. But, on the other hand, "one most probably needs to live the process of appropriation though in person".

In the beginning of the research process I asked what orientation is. Now I would conclude: Orientation is conscious, object-oriented activity. Activity is, for its part, constant re-orientation.

Orientation should always be flickering in the background of any activity. Orientation covers activity, and it is like a world-view. The ultimate finding of this study for myself was the notion that orientation is a method of thinking, a philosophy, in the same way that the entire activity theory is a kind of philosophy.

Orientation is a journey towards a germ-cell - and anything may happen on the road:

"...Your majesty knows as well as I do that the future is pregnant with more eventualities than it can give birth to. And it is not impossible to hear some of them move in the womb of time. But only the situation of the moment decides which of these embryos is viable and will mature..."

Marguerite Yourcenar, *L'oeuvre au noir*

## **APPENDIX 1: TEACHER EDUCATION AT THE FBC TEACHER EDUCATION INSTITUTE IN 1993-1994**

### **1 Background**

Education in Finland begins at the age of 7 when children enter comprehensive school. At 16, a person can choose either the path of vocational education in respective schools or colleges (2-3 years) or pursue further studies in a senior secondary school for 3 years. From senior secondary schools the students can continue at vocational college, polytechnic, or university. All these vocational forms are represented in Finnish business education.

Many students in business colleges, and especially the students in business polytechnics, have working life experience. The proportion of adult students in vocational educational institutes is considerable. Most business colleges also have departments for training programmes and short courses where the participants often are company employees.

In 1986, vocational teacher education in Finland was reformed and its structure standardised to comprise 40 study weeks or credit units. The number of institutes offering vocational teacher education used to be nearly 20. Today (1997) there is another reorganisation going on. The number of study weeks has been reduced 35, and the number of autonomous institutes has been limited to 5. One of the five remaining is the Teacher Education Institute of the Finnish Business College, which will be called the Helsinki School of Vocational Teacher Education, from August 1997.

### **2 The programme of the FBC Teacher Education**

#### **2.1 Qualifications of working life as basis**

It has been suggested that future working life will involve continuing education, several vocations over one's life-time, continuing mobility in the work, and constantly evolving work. This demands a larger and more flexible assortment of skills, better understanding of work, planning and control of one's own work, theoretical thinking with models, and commitment to work. The trend is towards diffuse tasks, integrated networks, cooperation, and responsibility with a wider span than just one's own particular job. Flexibility and a developmental attitude are inevitable. (Handy, 1986; 1990; 1995a; 1995b; Kasvio, 1994, p. 21; Kuutti & Bannon, 1991):

Vocational education needs to figure out the contemporary challenges and qualifications needed in working life. Consequently, vocational education needs to develop learning processes that produce the required

qualifications. Changes in society, in the context of work, and in work itself create tensions for teaching, too. The courses at The FBC Teacher Education aim at finding solutions to these challenges.

## **2.2 Principles of active learning and collaboration**

Vocational teachers and teacher educators have to deal with a world of many dimensions and plural values. There is no point learning "school-going" by itself. In rapid change, a human being should not receive what is going on in the surroundings uncritically. Neither can learning be conceived as passive reception of knowledge only. The teacher education programme aims at assisting both student teachers and their students to become active and alert learners able to grasp problems and challenges of their environments in a developmental way.

To be able to collaborate is as crucial as being able to think independently. This concerns both the students at vocational colleges and polytechnics with regard to their future in working life as well as the teachers themselves in their work locations. In schools collaboration between teachers becomes more and more important. Finnish vocational colleges and polytechnics are currently responsible for developing their own curricula for which The Board of Education gives just a general common framework. This drives both collaboration and integration of subject areas. Also the student teachers at the FBC are organised to learn to work in teams of various combinations, a common trend at modern worksites in general.

## **2.3 Overview of the contents of the programme**

Creating a comprehensive understanding of teaching and learning is a task to be worked on right from the beginning of the teacher education programme. This comprehension involves the levels of business life, of school, of learning processes, and of students.

The one-year programme contains (1) general pedagogic studies, (2) vocational pedagogic studies, and (3) teaching practice. It consists of internal periods of 1-2 weeks in Helsinki and of external parts in the school where the student teacher is engaged.

(1) Many of the student teachers have completed their general pedagogic studies before they start with us. The course can also be taken within the FBC Teacher Education where it has been set up in collaboration with the University of Helsinki. In our institute the general pedagogic studies focus on adult and continuing education, and they consist of psychology, didactics, sociology and organisational theories.

(2) Vocational pedagogic studies include courses covering vocational education, vocational didactics, and subject matter didactics. Having been

just separate items in the programme, the totality of vocational pedagogic studies together with (3) the training of teaching practices has been moving towards comprehensive meaningful processes. Student teachers are meant to plan and implement large thematic units and other projects both in the colleges or polytechnics of their own and at the FBC jointly with other student teachers.

In vocational pedagogical studies, in the course of vocational didactics (7-8 credits) in particular, student teachers repeat learning theories that were learnt in general pedagogics, and practice thematic unit planning. Learning theories include behaviorism (e.g., Thorndike, Skinner); humanistic tradition (e.g., Maslow, Rogers, Kolb); cognitivism (e.g., Judin, Ausubel, Bruner, Entwistle, Biggs, Marton); pragmatism (e.g., Dewey); and activity theory (e.g., Gal'perin, Davydov, Engeström, Miettinen). Through familiarity with a range of theories the student teachers are meant to be able to justify their pedagogical decisions in instruction.

Our curriculum also includes courses such as Instructional Leadership, Pedagogic Communication, Youth Culture, and Learning Strategies to underpin the learning process closely. In teacher training, when student teachers give lessons, they also receive individual coaching in these issues by their supervising teacher.

Internal periods consist of seminars, lectures, exercises and discussions. They include teacher training and auditing of lessons, and tutorials with the supervising teacher of the subject area. The first internal part begins at the end of August, but the student teachers have accomplished their first distance learning tasks during the summer already. The number of internal parts is 5-6 during the whole year and the programme ends in April with the last of those.

External study periods are closely bound to internal periods. Student teachers accomplish various tasks in their own schools: they do field training, implement theories learnt, study literature, perform instructional experimenting, and prepare work papers and seminars.

The programme is meant to promote the development of the participants rather than to produce formally qualified teachers. This is why personal options and choices of student teachers are both provided for and expected. To sustain this, the study system is also quite flexible. Each student teacher agrees on the details of his or her studies in the form of an individual learning contract with a supervising teacher.

## APPENDIX 2: EXAMPLES OF THEMATIC UNITS

The following list, with one detailed example, illustrates thematic units implemented in the FBC Teacher Education in the years round 1990.

- Auditing
- Segmentation of the market
- Doing business between Finland and German-speaking countries
- Improving productivity of a retail shop
- Implementing green business
- Managing Crises
- Networks and teams in business practices
- Running the students' own business

In the thematic unit<sup>1</sup> "Improving productivity" a case of a real (although modified) retail shop was given to the students. Their task was to analyse it on their own to discover the problems in the firm. (*Creating motivation and orientation.*) The students soon discovered the weak profitability of the firm. (*Evaluation steps in!*) In further analyses with additional material they came to the conclusion that the main problem was poor productivity. (*The object becomes more visible; orientation strengthens.*) Now they needed more facts to analyse further; there were, e.g., lectures given by the teacher to explore various areas of productivity in companies in general. (*Internalisation, perhaps externalisation in connection with respective smaller learning tasks.*) After this the students began to look for justified suggestions on how to improve the firm's productivity. (*Evaluation, orientation, externalisation, at least.*) At the end of the thematic unit an outside expert was invited to give his opinion of how these solutions might work in practice. (*Evaluation.*) The students also evaluated their learning process.

Good learning tasks are essential in implementation. In an ideal case the whole thematic unit is a large learning task or a sequence of learning tasks. This detailed example came close to this ideal. Furthermore, it worked according to several ideals presented in Figures 9 and 10 (in the text). The activity in focus was productivity in companies and how to improve it, so the object was clear and relevant. Real motives could become visible when this object was modified. In other words, working with real problems of productivity (object) aroused motivation. Continuous work with the object helped to reveal the real practices and qualifications needed for better productivity.

In this unit the learners also became acquainted with theoretical generalisation and modelling which took place with orientation bases. It was typical still at that time (in 1989) that teachers mostly developed the

---

<sup>1</sup> The basic ideas for this thematic unit came from student teachers in 1988-1989.

models, or at least they strongly guided the process of orientation. In this thematic unit several models (graphic orientation bases) were used to help to understand systems of the particular company and productivity in general. They were of help, e.g., in figuring out reasons for poor productivity and in finding out which problems of the object needed to be tackled and what kind of new knowledge was required.

(In the description above, some remarks italicised in parentheses refer to the learning actions of the conscious learning cycle. It is quite difficult to distinguish them definitively. This implies the heuristic nature of the cycle. The six learning actions are not separate, and they do not follow each other in a rigid order. All the time all the actions are present in the learning process. Only the emphasis varies.)

The description is based on Torvinen (in press).

### **APPENDIX 3: INSTRUCTION OF ORIENTATION AT THE FBC TEACHER EDUCATION IN 1993-1994**

1) With respect to activity theory, student teachers become acquainted with the idea of activity (Leont'ev, 1978; Engeström, 1987), Gal'perin's (1979) idea of orientation, Davydov's (1982; 1988b) theory of modelling, Engeström's (1982; 1994) cycle of conscious learning, and the idea of thematic unit (Miettinen, 1993; Miettinen & Kinnunen, 1989). There are also exercises in thematic unit planning.

2) Orientation is presented in close connection with the learning cycle of Engeström complemented with examples of types of orientation bases. The thorough study of Gal'perin's ideas is not possible within the time available. Davydov's idea of modelling, based on the theory of ascending from the abstract to the concrete, is explained but not discussed in detail either.

The idea of practical implementations in our institute may be best illustrated in the learning tasks of vocational didactics. The tasks are usually solved in groups of 4-7 student teachers. A task of orientation (Peisa, 1994) was as follows:

So far the team assignments have dealt with general ideas about thematic units. Now we will begin to plan them. Please present core ideas and principles of the phenomenon typical of the unit you are working on, and organise them into a model (an orientation basis) that explains the phenomenon. You should also test whether your model/models fulfill the criteria of a good orientation basis, i.e.: (1) explaining the entirety of a system, (2) revealing principles of the activity in question, (3) giving basis to construct other, so-called minor models, and (4) giving a basis for the solving of problems connected to the deep idea of this system.

Student teachers then will present their solutions in large meetings with the participation of some supervising teachers. In many cases the student teachers implement these plans in the course of teacher education, but it is also quite possible that after this meeting orientation will not be strongly underlined anymore. This depends on the emphases of the groups the student teacher happens to participate in during the year.

3) The entire time resource for vocational didactics is 7-8 credits (out of the total of 40 credits), so the lectures can give just an overview of theories. Vocational didactics includes seven major learning tasks, one of which is the orientation task described above.

In the programme the section of activity theory, as a theory as such, is modest. Engeström's cycle and the thematic unit are presented thoroughly, but the other issues mentioned in paragraph (1) above are just briefly introduced. The most underlined points in the thematic units are motivation, orientation, developmental evaluation, learning tasks, and promotion of active and collaborative learning.



**APPENDIX 4: ADDITIONAL QUESTIONS IN THE FIRST INTERVIEWS (1993-1994)**

These questions were asked according to the situation, if the discussion in the interview seemed to be turning to topics like these:

- 1 Does orientation in learning require a "model"? Why? Why not? (I did not, deliberately, offer any explanation of the concept of "model".)
- 2 Have you used these "models"? If yes, what kind of models and in what situations?
- 3 Is the orientation basis always a "picture"? Other possibilities?
- 4 How do you create a situation where your students can make orientation bases themselves, independently? Please, tell about your experiences.
- 5 Have you recently started a new thematic unit with your students? What was it all about? How did you start? (If the interviewee had explicitly spoken about "orientation", I asked what had been done in that respect.)

**APPENDIX 5: NEW QUESTIONS IN THE COMPLEMENTARY  
INTERVIEWS OF THE FIRST ROUND (SPRING 1994)**

(Presented according to what seemed relevant or convenient, since every respondent was not necessarily inclined to use orientation.)

- 1            Perhaps your relation to orientation has already changed during the course of this winter and during our research process. Has it? In what way?
- 2            How have you fostered orientation in your teaching practices? Please describe the situation.
- 3            (If the respondent had been employing orientation:) In the last few months, how have you tried to develop your measures aiming at orientation of the student?
- 4            What kind of challenges does orientation involve for a teacher and for the practices of teaching and learning?
- 5            What are the problems you think you will try to solve next?
- 6            Have you discussed orientation with your students? If so, what has come out of it?
- 7            With whom do you talk about these things? What are you talking about? What are you pondering?

## **APPENDIX 6: INVENTORY OF THE DATA OF THE STUDY**

### **DATA IN TOTAL**

Exam of vocational didactics (30 August 1993): exam papers of some 60 student teachers.

Distance learning tasks of vocational didactics by every student teacher (in this study), and their learning contracts with the FBC Teacher Education (1993).

44 teacher interviews (recorded on tape and transcribed) (1993-1996).

18 sets of student interviews (recorded on tape and mainly transcribed) and 9 questionnaires, covering some 150 students (1993-1994, 1994-1995).

34 observed lessons (1993-1994, 1994-1995).

Documentary and other authentic material consisting of thematic unit plans, orientation bases, evaluations, reports, essays, exam questions, and letters (1993-1996).

### **DATA DETAILED PER INFORMANT**

(Distance learning tasks, exam papers and learning contracts are not listed.)

#### **1) INFORMANT A**

##### **Teacher Interviews**

24 January 1994  
16 May 1994  
22 November 1994  
13 February 1995  
26 April 1996

##### **Student Interviews**

30 March 1994 (2 students)  
30 March 1994 (5 students)  
16-17 November 1994 (8 students, in three groups)

**Observation**

1993-1994: 8 lessons, various classes

**Documentary and other materials**

1993-1994

- thematic unit plans
- written evaluations on orientation bases, made by A's students - 20-25 separate examples of graphic orientation bases
- several creative artefacts (orientation bases), for example a set of pictures about a sports shop, an artistic creation about need hierarchy, a game

1994-1995

- two sets of written course evaluations by A's students
- orientation bases, made by A's students

**2) INFORMANT B****Teacher Interviews**

19 January 1994

27 April 1994

7 February 1995

10 April 1996

**Questionnaires to students**

7 February 1995 (17 students)

**Documentary and other materials**

- a large thematic unit plan complemented by learning tasks and supporting materials

### 3) INFORMANT C

#### **Teacher Interviews**

19 January 1994  
 26 April 1994  
 23 November 1994  
 20 April 1996

#### **Student Interviews**

22 November 1993 (5 students, individually)  
 23 November 1994 (10 students, one group)

#### **Observation**

1993-1995: 10 lessons, various classes

#### **Documentary and other materials**

1993-1994

- a particularly large plan for a thematic unit covering an entire schoolyear (practice enterprise) in the form of an extensive report, including a series of learning tasks
- exam papers of students
- reports by C, concerning his teacher education
- orientation bases of the students
- SWOT-analysis made by the students
- letters

1994-1995

- orientation bases of the students
- SWOT-analysis made by the students
- letters

1995-1996

- orientation bases
- letters

#### 4) INFORMANT D

##### **Teacher Interviews**

17 March 1994

26 April 1994

30 November 1994

24 June 96

##### **Student interviews**

30 November 1994 (11 students, individually or in pairs)

Written interview (2 students), December 94

##### **Written comments by the students**

- spring 1994

##### **Observation**

1993-1994: 4 lessons, one class (on video)

30 November 1994 (2 classes)

##### **Documentary and other materials**

1993-1994

- a plan of a thematic unit

- orientation bases (photographs and drawings)

1994-1995

- orientation bases

- letters

1995-1996

- letters

## 5) INFORMANT E

### **Teacher Interviews**

19 January 1994  
 27 April 1994  
 12 December 1994  
 10 April 1995  
 14 May 1996

### **Student interviews**

12 December 1994 (4 students)  
 10 April 1995 (5 students, individually)

### **Documentary and other materials**

1994-1995

- a set of learning tasks

1995-1996

- 3 sets of learning tasks
- e-mail messages

## 6) INFORMANT F

### **Teacher interviews**

30 November 1993  
 3 January 1994 (by phone)  
 27 January 1994  
 2 May 1994  
 9 December 1994  
 29 December 1994  
 16 January 1995 (by phone)  
 12 April 1995  
 29 May 1996

### **Student interviews**

Questionnaire to 31 students, December 1993  
 Questionnaire to students (one class), December 1994  
 Discussion with students, 9 December 1994

**Documentary and other materials**

1993-1994

Learning tasks with answers (one class), December 1993

Orientation bases of students (one class), May 1994

1994-1995

Learning tasks, December 1994

Orientation bases of students (one class), December 1994

Orientation bases and other materials of students (one class), April 1995

1995-1996

Learning tasks

Exam questions

**7) INFORMANT G****Teacher Interviews**

20 January 1994

8 February 1994

24 March 1994

28 April 1994

15 December 1994

29 May 1996

**Student Interviews**

8 February (3 students, individually)

24 January 1995 (6 students, in pairs)

**Observation**

8 February 1994 (2 lessons, one class)

**Documentary and other materials**

1993-1994

- a paper comparing different learning theories

- 3 large sets of thematic units with supporting materials, learning tasks, and partly evaluations by students



1994-1995

- curriculum for that schoolyear
- a report about self-directedness of students
- large materials of evaluations made by students
- a learning task
- letters

1995-1996

- materials about making personal learning plans
- orientation bases and plans for teaching
- an essay about adult education

## 8) INFORMANT H

### **Teacher interviews**

11 April 1994  
27 January 1995  
13 May 1996

### **Student Interviews**

11 April 1994 (12 students, in two groups)

### **Observation**

1993-1994: 8 lessons, various classes

### **Documentary and other materials**

1993-1994

- 2 thematic unit plans
- examples of orientation bases

1994-1995

- letters

**INFORMANT J****Teacher interviews**

30 January 1994

30 March 1995

19 May 1996

10 June 1996

**Student interviews**

20 May 1996 (2 students)

**Documentary and other materials**

1993-1994

- a thematic unit plan

1994-1995

- a thematic unit plan

1995-1996

- materials about how to make a thesis
- thematic unit plans
- exam questions

**APPENDIX 7: QUESTIONS IN THE SECOND ROUND (1994 - 1995)**

- 1           How do you understand the concepts
  - activity theory
  - orientation
  - orientation basis?
- 2           What is the significance of orientation in instruction? Or is there any?
- 3           How have you perhaps proceeded with implementation of orientation since the last spring? How have you tried to develop means of instruction aiming at orientation of the student? What kind of developmental challenges are involved for you as a teacher?
- 4           How do you describe a successful orientation process (with the students)? How do you plan your work towards this?
- 5           What is problematic in orientation in teaching and learning practices?
- 6           Which problems (for example) are you going to solve next?
- 7           Have you discussed orientation with your students? If so, what has come out of it?
- 8           How do you see the connection between motivation and orientation?
- 9           Towards what are people orientating in an orientation process?
- 10          This year, have you implemented thematic units where at least some kind of orientation or orientation bases were used?
- 11          How did you put orientation in practice (in these thematic units)? What was your aim in orientation? What happened? Please, tell about it in detail. In particular, tell about your role in relation to the students' role.

# APPENDIX 8: LIST OF (PRELIMINARY) CATEGORIES AND CODES IN ANALYSIS (28 March 1996)

The first rough and overlapping classification: categories and coding  
(includes a "first-hand" interpretation)

- |                        |  |
|------------------------|--|
| 1. AI = actinterpre    | = interpretation of (the concept of) activity  |
| 2. OI = oriinterpre    | = interpretation of (the concept of) orientation   |
| 3. OF = orifunction    | = the function, or the idea, of orientation  |
| 4. OC = oricreation    | = how orientation is created or put into practice in teaching and learning                                   |
| 5. OU = oriuse         | = how teachers and students use orientation (bases) in practice  |
| 6. OB = oribasis       | = orientation bases (in general; any notion included)  |
| 7. OT = oritypes       | = the five types of orientation by Engeström   |
| 8. MO = models         | = the concept of model in various forms (often included in OB)   |
| 9. AR = artetypes      | = various artefacts as orientation bases (often included in OB or MO)  |
| 10. CR = creativity    | = creative solutions when putting orientation and, in particular, o. bases into practice                     |
| 11. PR = practice      | = examples of instructional practice<br>(this overlaps with OU)  |
| 12. PB = problem       | = a problem that a teacher mentions (a sign of a need or a contradiction, a challenge) (includes also needs) |
| 13. CH = challenge     | = marked only, if a real challenge. Otherwise in the category PB   |
| 14. SO = solution      | = solution to a previous problem, need, challenge etc.   |
| 15. IV = innovation    | = innovation in instruction (overlapping with SO).   |
| 16. MT =               | = motivation   |
| 17. SS = space         | = student's space (see Appendix 10)  |
| 18. AL = active        | = active learner   |
| 19. CO = collaboration | = collaboration, be it then between teachers or students or both   |
| 20. OW = ownunderstand | = own understanding (of the students)  |
| 21. AP = appropriation | = how teachers appropriate   |
| 22. IN = intervention  | = that the researcher makes into the process   |
| 23. CG = change        | = a change or development a teacher mentions   |
| 24. EN = environment   | = environment of activity (school, its culture, colleagues etc.)   |
| 25. FE = feelings      | = expressions of feelings (can be found also in VA)  |
| 26. EX = experience    | = how teachers experience situations, issues etc.  |
| 27. VA = various       | = various issues that might be of interest   |

- 28. SE = seko = miscellaneous (probably not useful, but just in case)
- 29. ZP = ZPD = zone of proximal development
- 30. AC = activity = activity (instead of action) to be seen as object

## APPENDIX 9: AN EXAMPLE OF A CODED PAGE

\$OC; AP; CG;

Dora

26April994

L: \*This instruction with your students ...what happened in this process of orientation, when you started to do orientation? What did you do? What were your purposes, goals... What happened?

D: Well, it changed a lot actually during this time... When I started... when I made my first orientation and then where I am now... Actually completely different. If I compare the time in the autumn when I tried this for the first time.

L: Can you tell more about that? Can you explain it to me somehow?\*

\$VA; MO; OC; OI; SS; AL;

Dora

26April994

D: \*Well, the main thing was that I really didn't know what it was. I just thought I understood, that we had to get kind of picture of the items we were going to deal with, and I asked my students to think about the topic and then I ... I made a picture of it. They gave me their ideas and I forced it into a picture.

L: You forced it?

D: I forced it. They gave me the ideas and then I did it on the transparency, so they could see all the time. But I actually forced it ...to be a picture... which now, I think, was completely wrong, but I think I got my ideas from the... I don't remember the name... the book we read before we came here.

L: It might have been Miettinen-Kinnunen... or maybe... \*

\$VA; OB; AT; AL; FE; SS;

Dora

26April994

D: \*The first pictures, the teacher trainers had made here... They were actually pictures, cars and things...so that kind of influenced me. But then I heard more, later on, and when we did it in the [student teachers'] group, it changed. And then, now in spring, when X [her teacher trainer] was there in our school, I was pretty... well I don't know... I had the courage to try it in a different way, so that the students actually, they did it. I didn't try to get it in any form, I did not even try to

get all the ideas I had thought of. I just stated: You had some things that I did not think of and then we left it like that. The groups had made orientations themselves. I didn't do any one orientation that should have been complex or...\*

## APPENDIX 10: CRITERIA AND PROCEDURE OF STUDYING THE CONCEPT OF STUDENTS' SPACE

For Students' Space I examined data from the code areas of "active learner" and "students' space" in the entire database. I expected that they had factors in common. Basically I had not mentioned this concept of space to the informants; it was only in the final checking interviews of the third round that I occasionally told about it to some of them. I coded chunks that seemed to deal with thoughts and situations where the students had the opportunity of making liberal choices, where they seemed to have some autonomy, and where they were entitled to make decisions concerning their learning. I also considered points of the data where the students were taking responsibility (and it was even expected), and where they showed initiative.

When searching for further items or subcodes I proceeded round by round, but I did not differentiate the informants in particular, the method thus being different from the main parts of the results (Chapters 7-9). I handled the body of data rather as if it were from "one person" only. My interest was in various indicators for this new concept, not in the data of various persons as such. Ideas for subcodes came on the one hand from the data and my own notions (reviewing the data, writing of notes). On the other hand they came from recollecting my own interests within the concept of Students' Space. These interests are described mainly in Chapters 3, 4, and 10. The subcodes were as follows:

<i>Code</i>	<i>Explanation of the contents of the code</i>
1DF	Definition
2IM	Why is "SS"* important? In general? In orientation?
3SO	Sources of SS = Where does the space come from?
4CR	Creation of SS = How is the space created?
5RE	Representations or "areas" (indicators) of SS
6EF	Effects of SS = How does it effect?
7RA	What conceptual areas might SS be related to? (Leadership?)
8PB	Problems with the SS
9DM	What does SS demand?
10VA	Various topics
11OR	Various topics about SS and orientation

\* (SS=Students' Space)

When proceeding with further analysis, reorganising of these code areas proved necessary. I made revisions and re-revisions and ended up with some broader classes, which made up the following agenda:



- 1) The concept of SS: Introduction and preliminary definition of the concept - connected with orientation
- 2) Teachers' thoughts related with the area of this concept (including challenging perspectives, or signs of zones of proximal development)
- 3) Signs of SS in the data
- 4) What does SS demand?
- 5) Challenges, risks and solutions with SS
- 6) Effects or significance of SS
- 7) Transformations in the area of SS
- 8) Redefinition or theory of SS

From these, I derived, for example, the dimensions:

- 1) Methods or modes of working
- 2) (Modelling as a method)
- 3) Student-teacher relationship; learning climate
- 4) Students' attitudes
- 5) Circumstances at school

## APPENDIX 11: NOTES IN THE ANALYST'S DIARY

*February 1996:* People seem to suffer pain when creating new ways of working. Also there are experiences of success. I ought to record what the teacher's role was and what kind of instruction they gave.

*26 March 1996:* Is the positive attitude of the students only because of the novelty of the way of working?

The student interviews reveal that the teacher [x] has aimed at "an active learner". They have also been making pictures, but it is unclear for what reason. What do these pictures deal with? Has this got something to do with the object being a problematic issue?

When a basic analysis about an informant has been made, it needs to be reflected to the whole view of his/her data. (Whether it is consistent.)

How much should I think about why they are doing things in the way they are doing?

*28 March 1996:* These people seem to learn quite a different view, each. Why is that? The later rounds seem to show, that if an understanding once is learnt, it stays quite firm for a longer period.

I must also think of what they are not talking about.

*4 April 1996:* Everyone is going his/her own way. Everyone has his or her own viewpoint on orientation - and this point is not necessarily changing. Only complementary features might occur. Why is it this way? Is this a big question?

I need to think of what is common in their views on orientation, and what is not.

Motivation emerges very clearly (as connected with orientation.)

The activeness of learners is emphasised clearly.

Some of them say that they would need a cooperating colleague.

What topics of teacher education are not being mentioned?

*11 May 1996:* Orientation is not the same as modelling. Orientation is something larger than modelling.

Is this a general pattern: Uncertainty leads to a belief, and this is getting established. Then comes a new uncertainty: what was learnt is not enough anymore?

Before one's activity can be studied, we ought to know what kind of conceptions he or she has got (governing activity).

**APPENDIX 12: A LETTER TO ALL INFORMANTS IN AUTUMN  
1994**

---

Liisa Torvinen

INFORMATION

3 October 1994

Hello again!

For your further orientation ....

As you remember we had the idea of meeting at the end of November/early December. We have got three topics on the agenda:

- 1            Issues that were unfinished - in one way or the other - in interviews last spring
- 2            basic questions of orientation, once again, to see what you are thinking about them right now
- 3            a thematic unit from this autumn, if you had one; orientation in it - your plans and implementation etc.

Point 3 is quite vital. Since we so far have had only few of your students "under the loupe", I would be particularly happy to meet some of them, too, when the entire unit is (nearly) completed.

Enclosed you will have two papers. One of them contains questions common to all of you. In the other one you will find themes concerning you only, themes left open last spring. I promised to return to them later on. All of you won't even need this second list.

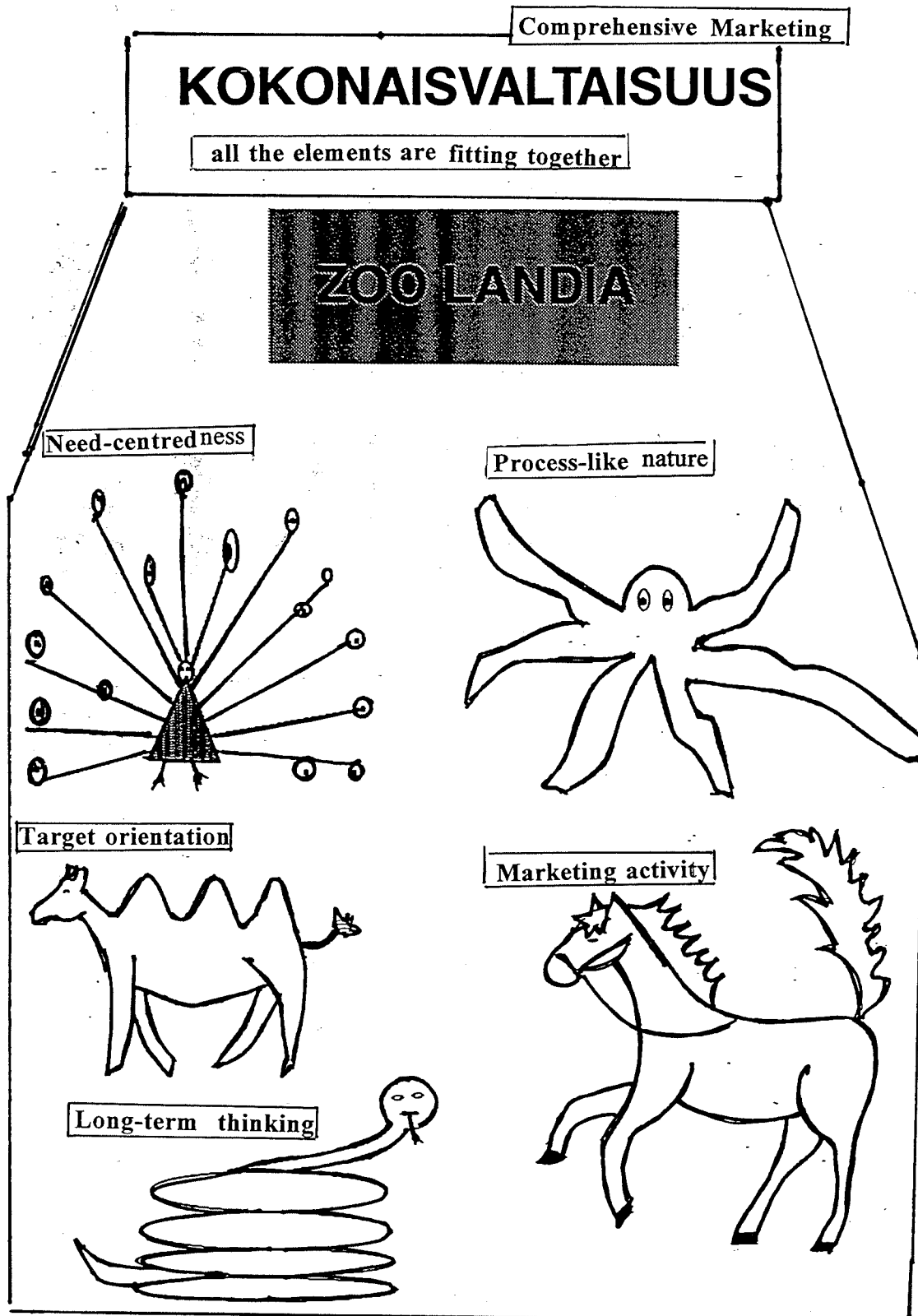
If you would like to ask something - anything! - you'll find me at school on Tuesdays from 10 to 12 am, at home preferably after 9 pm only - you are welcome to call until midnight!

Some time within the next few days I'll be in touch with you to agree upon a date for the interview.

Thank you for doing this for me!

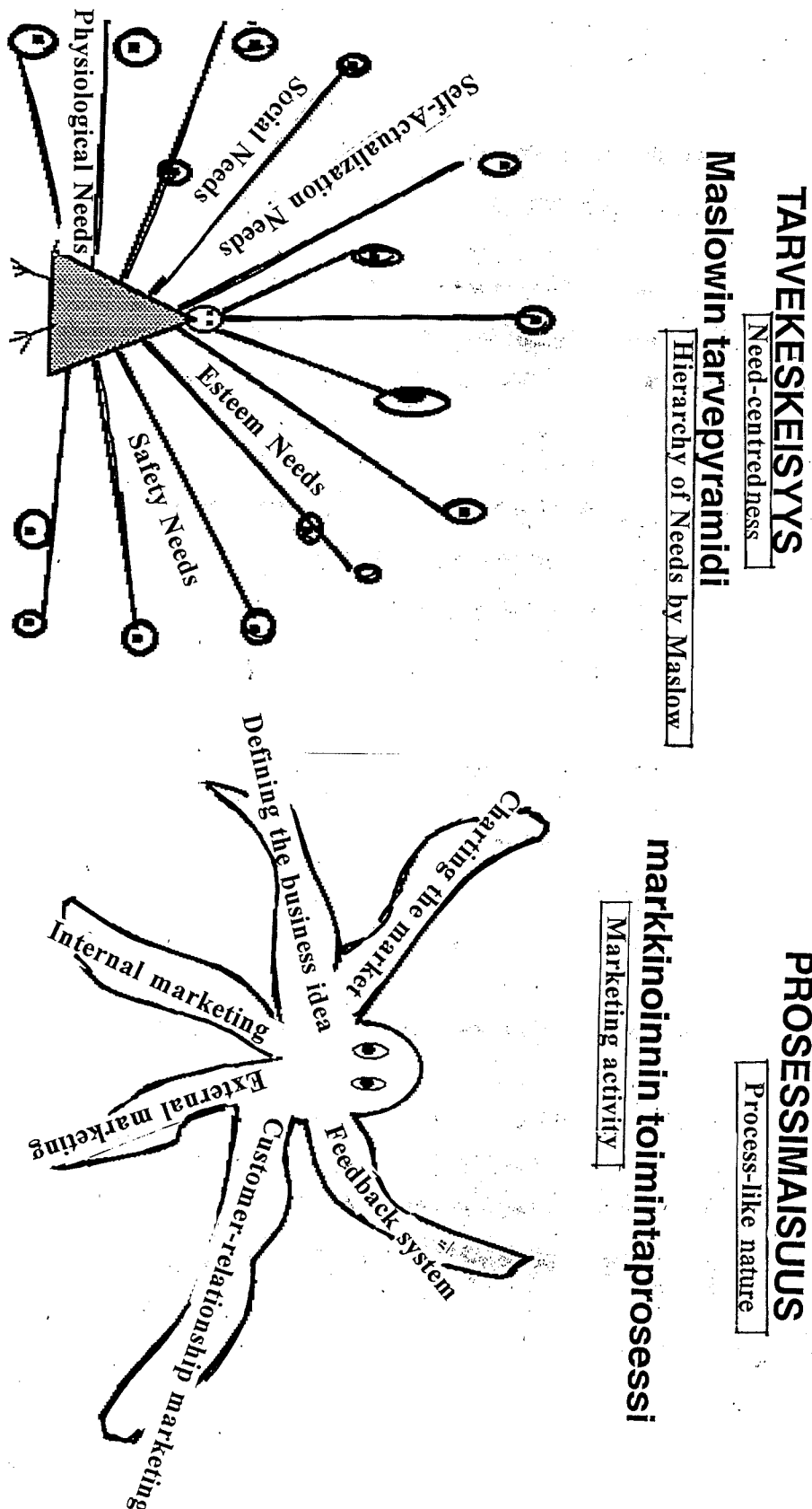
  
Liisa

**APPENDIX 13a: A SET OF ORIENTATION BASES OF A'S  
STUDENTS (1993-1994)**



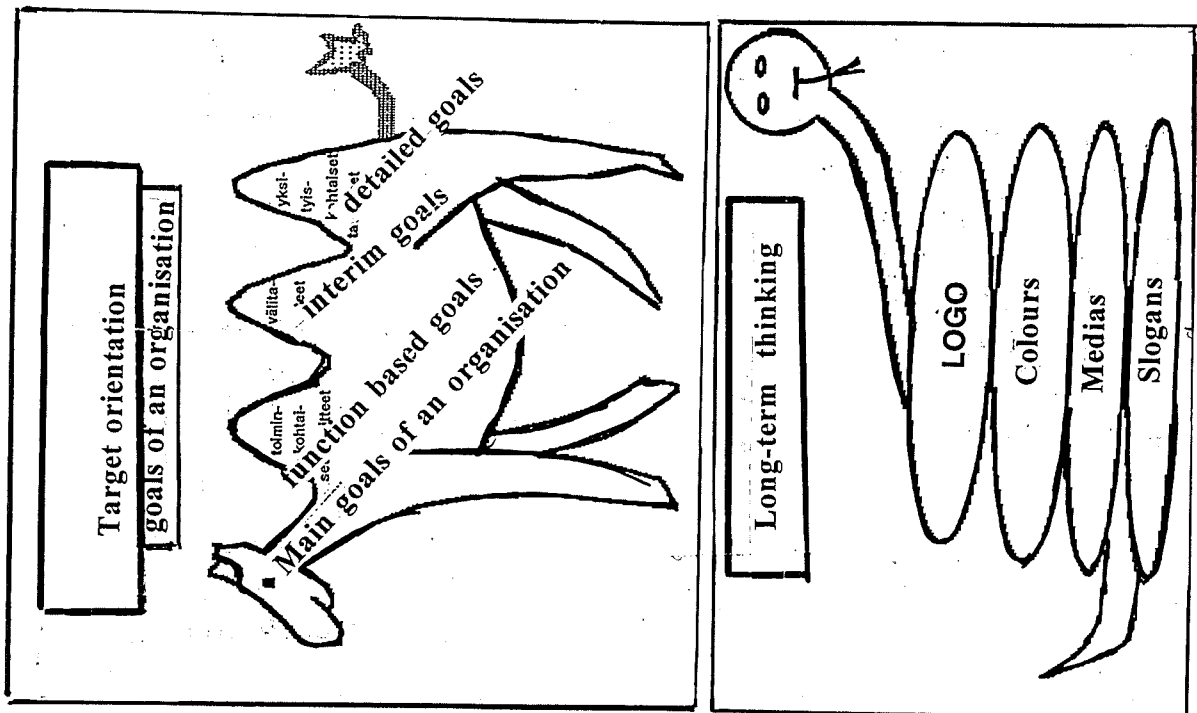
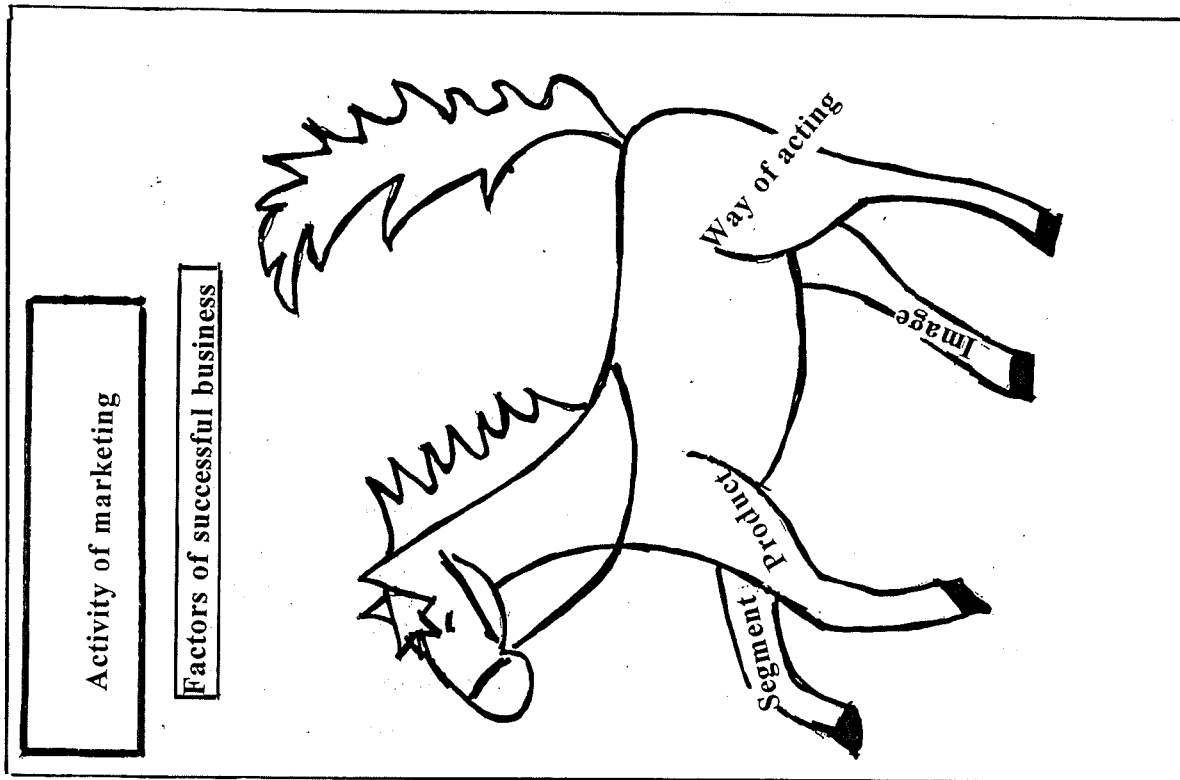
Translation from the original Finnish by the researcher

**APPENDIX 13b: A SET OF ORIENTATION BASES OF A'S  
STUDENTS (1993-1994) (continued)**



Translation from the original Finnish by the researcher

**APPENDIX 13c: A SET OF ORIENTATION BASES OF A'S  
STUDENTS (1993-1994) (continued)**



**APPENDIX 14a: DESCRIPTION OF ORIENTATION BASES OF A'S STUDENTS (1993-1994)****Observation protocol 30 March 1994: Students are presenting their own orientation bases**

(The 2nd year of the business college, age of students appr. 20-22 yrs, secretary class)

The teacher repeats the task of the students: They are to make orientation bases on some chapters of their marketing textbook. The teacher explains the meaning of the concept of orientation basis (a transparency on the overhead). She emphasises, for instance, that it is "a model needed for analysing the contents to be learnt, and it helps to figure out difficult points of the contents."

Presentation of the models reveals quite a lot of creative solutions.  
Examples:

"The concepts of the quality" - a self-made video about how a washing machine functions.

"Failures in creating good quality" (a play on a self-made video)

"Product Game" (a picture attached/14b; the game set included also rules and a variety of tasks produced by the students)

"The hierarchy of needs by Maslow" was presented as a particular artefact, constructed in the form of a henhouse.

A's students illustrated their presentations by metaphors in a form of an artefact (toys, an eye construction, a henhouse construction, examples about family life). They seemed to have put a lot of effort in producing models and often including a good portion of humour as well.

**APPENDIX 14b: DESCRIPTION OF ORIENTATION BASES OF A'S  
STUDENTS (1993-1994) (continued)**

**Example of the Product Game**

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



Translation:

A present from the Business College of X to the students of marketing throughout the country	ILLUSTRATIVE!
<p>DEVELOPING!</p> <p><b>PRODUCT GAME</b></p> <p>...EVEN BETTER THAN TRIVIAL PURSUIT</p>	
"How would I answer...?"	GOOD QUALITY!  designers: (names of students:)

Translation from the original Finnish by the researcher



## **APPENDIX 15a: DESCRIPTION OF A THEMATIC UNIT OF A'S STUDENTS (SPORTS SHOP) (1993-1994)**

### **Observation protocol by the analyst, 30 March 1994 Constructing orientation**

The class had earlier made a list of important factors in business. Based on this they were now supposed to figure out what this means in practice, in a single firm. (GOAL 1)

The class, all the students together, had been given a learning task to produce a business idea for a firm (GOAL 2), without the teacher's assistance. They ended with a firm selling skateboards. Particularly two boys in this class, experts on skateboards, had been godfathers of this business idea.

The students were then supposed to tell how their firm is going to function. The ideas were to be as close to the world of young people as possible (GOAL 3). An integrated illustration of the firm was to be created (GOAL 4).

The teacher had divided the work to be done in small groups (4-5 persons). The groups now presented their outcomes: All the groups had illustrated their work by pictures, texts, models etc. All these elements were put into a comprehensive presentation that was to be seen on the wall of the classroom (see the enclosed photographs in Appendix 15b). The elements of various groups were as follows:

- the business idea of the firm
- a name for the firm
- a plan for a shop-window; ideas for the interior of the shop and for the sales personnel's costumes
- a (huge) picture of a typical customer ("hip-hop")
- plans for training the personnel
- ideas for marketing
- a story (description) about this business
- the purchase process of a customer
- the main goals of any firm
- the importance of integrating the different parts and views, goals etc. in a firm to be a good whole altogether.

Finally the students told about their work: see Appendix 15c.

**APPENDIX 15b: DESCRIPTIONS ABOUT A THEMATIC UNIT OF  
A'S STUDENTS (SPORTS SHOP) (1993-1994) (continued)**

**Photographs of the comprehensive illustration (orientation basis)**

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



**APPENDIX 15c: DESCRIPTIONS ABOUT A THEMATIC UNIT OF  
A'S STUDENTS (SPORTS SHOP) (1993-1994) (continued)**

**Discussion with the students: the whole class (30 March 1994)**

Teacher "What do you think about your work? Does it help your learning?"

Student 1

"Things go this way in real life I think."

Student 2

"It is easier to understand this way."

Analyst "Where did you get these real-world facts such as prices from?"

Students

"We had own experiences ..." [everyone is eager to explain]

Analyst "So you want to say that you made it just on your own?"

Students (laughing...satisfied...) "Yes..."

Analyst "When perhaps doing this once again, what would you do in another way?"

Student 4

"I think it depends on the product then, with another product it is otherwise."

**Discussion with the students: the two boys who had been leading the  
work (30 March 1994)**

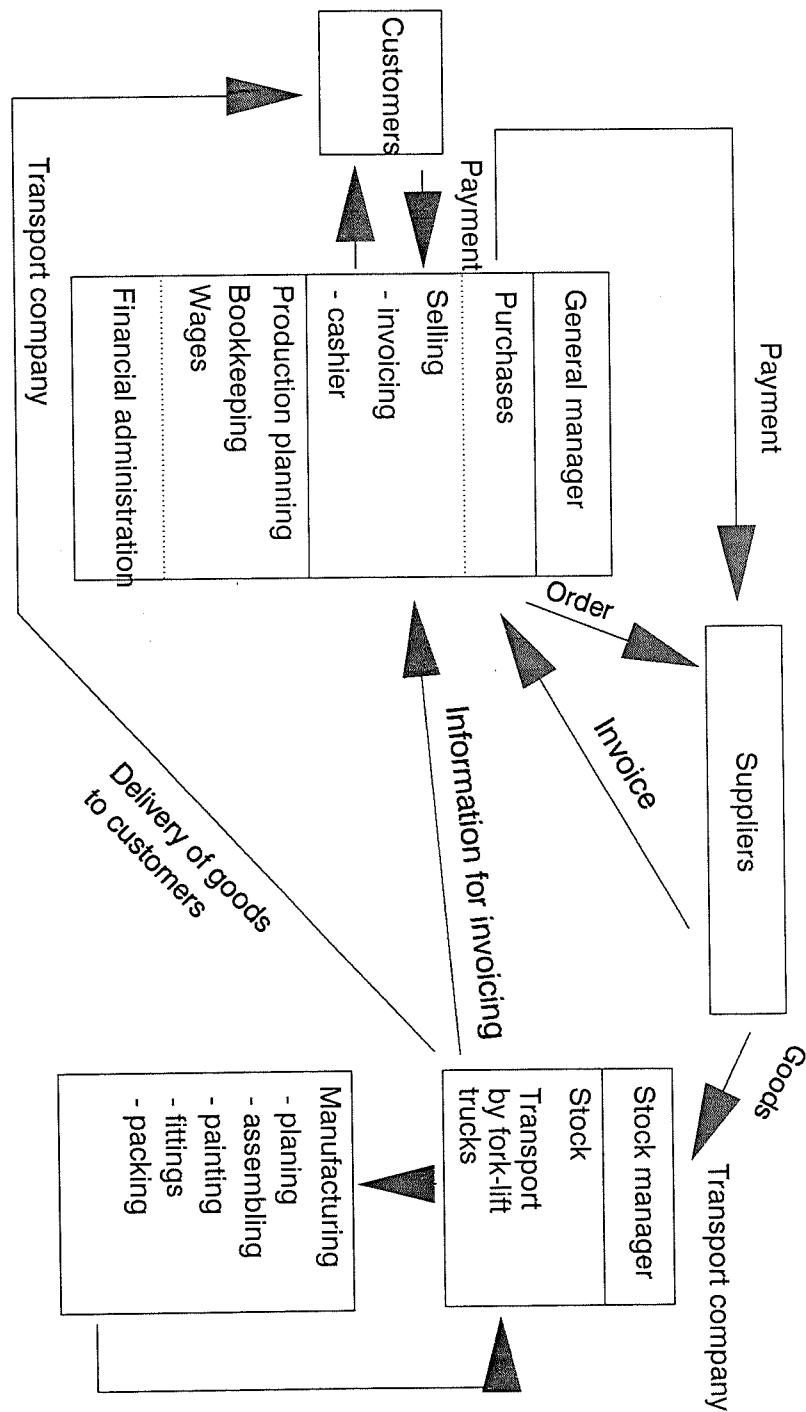
Analyst "What did you learn from this?"

1st boy "It was easier to understand this way when compared with just reading a textbook. To understand the practice. And you have to think what it is like to establish a business."

L "Today, when your teacher emphasised certain main points, how well could you recall them ...those cornerstones...?"

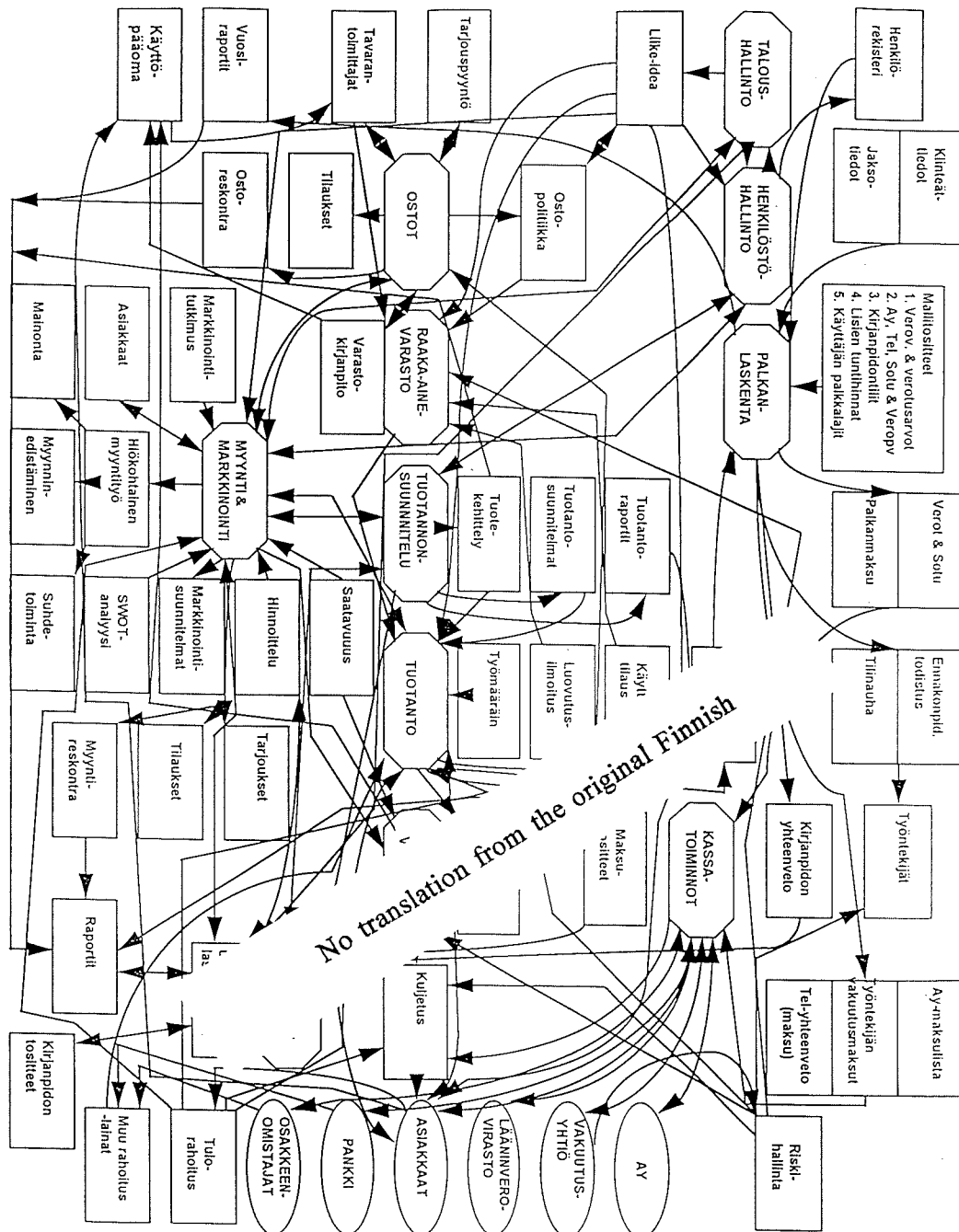
- 2nd boy "I do not remember perfectly, but something..."
- Analyst "Could you give an example...?"
- 2nd boy "Well, I don't remember, but I would be able to do this work again."
- Analyst "What do you think your teacher had in mind when she made you do this?"
- Boys "She wanted to test us..." (laughing)
- Analyst "Only?"
- Boys "She wanted to teach us something."
- Analyst "It seems to me that you had a nice time?"
- Boys "Well, yes, indeed we had!"

**APPENDIX 16a: AN ORIENTATION BASIS BY C'S STUDENTS  
(1993-1994) (ACTIVITY OF A FIRM - in the beginning of a course)**



Translation from the original Finnish by the researcher

**APPENDIX 16b: AN ORIENTATION BASIS BY C'S STUDENTS  
(1993-1994) (ACTIVITY OF A FIRM - at the end of a course)**



**APPENDIX 17: TWO ORIENTATION BASES BY D'S STUDENTS  
(1993-1994) (ACTIVITY OF A FIRM)**

IMAGE REDACTED DUE TO THIRD PARTY RIGHTS OR OTHER LEGAL ISSUES



Originally in English

**APPENDIX 18: TWO LEARNING TASKS BY G (1993-1994)****ACCOUNTING****I/Distance learning task**

We are starting with a new thematic unit, VALUE ADDED TAX (VAT). Attached you will find the first part of your learning material. The aim is motivation and orientation to the basics of the thematic unit.

Before getting acquainted with the learning material, please think about:

1. what do you think Value Added Tax means (what do you think about it) and how does it affect you as a private person.

Get acquainted with the learning material and the value added tax legislation (as appropriate) and

2. complement thoughts, issues etcetera you mentioned in the first point.

Keep the points 1 and 2 separate in your answers, do not combine them. Compare your answers to each other.

===

3. Why do you think the value added tax system is needed?
4. With VAT, what do you think are the main regulations concerning being subject to tax?
5. What does tax deductibility mean in VAT system?
6. Choose a field and consider from a (perhaps fictitious) firm's point of view, what items subject to tax (and possibly tax free items) it might have, and further, what deductible (and possibly nondeductible) items it might have in VAT system?
7. What would you like to ask or comment on at this phase?

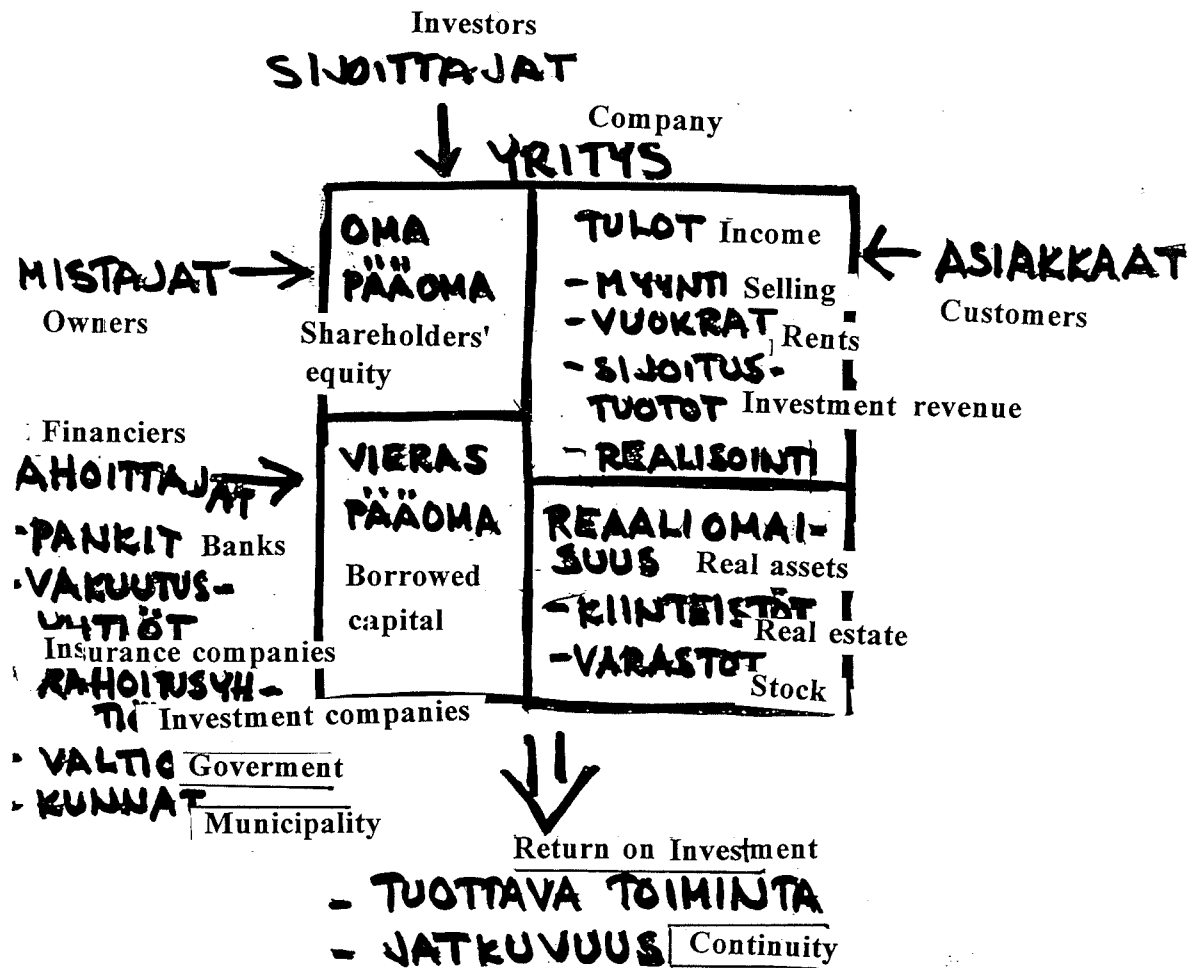


**II/Evaluating task**

After some hard and long-lasting work we will soon finish with the thematic unit of VAT. A "complete" learning process, however, includes also evaluation, so... Please, evaluate this unit from all sides. Any critique is welcome. Please, be open.

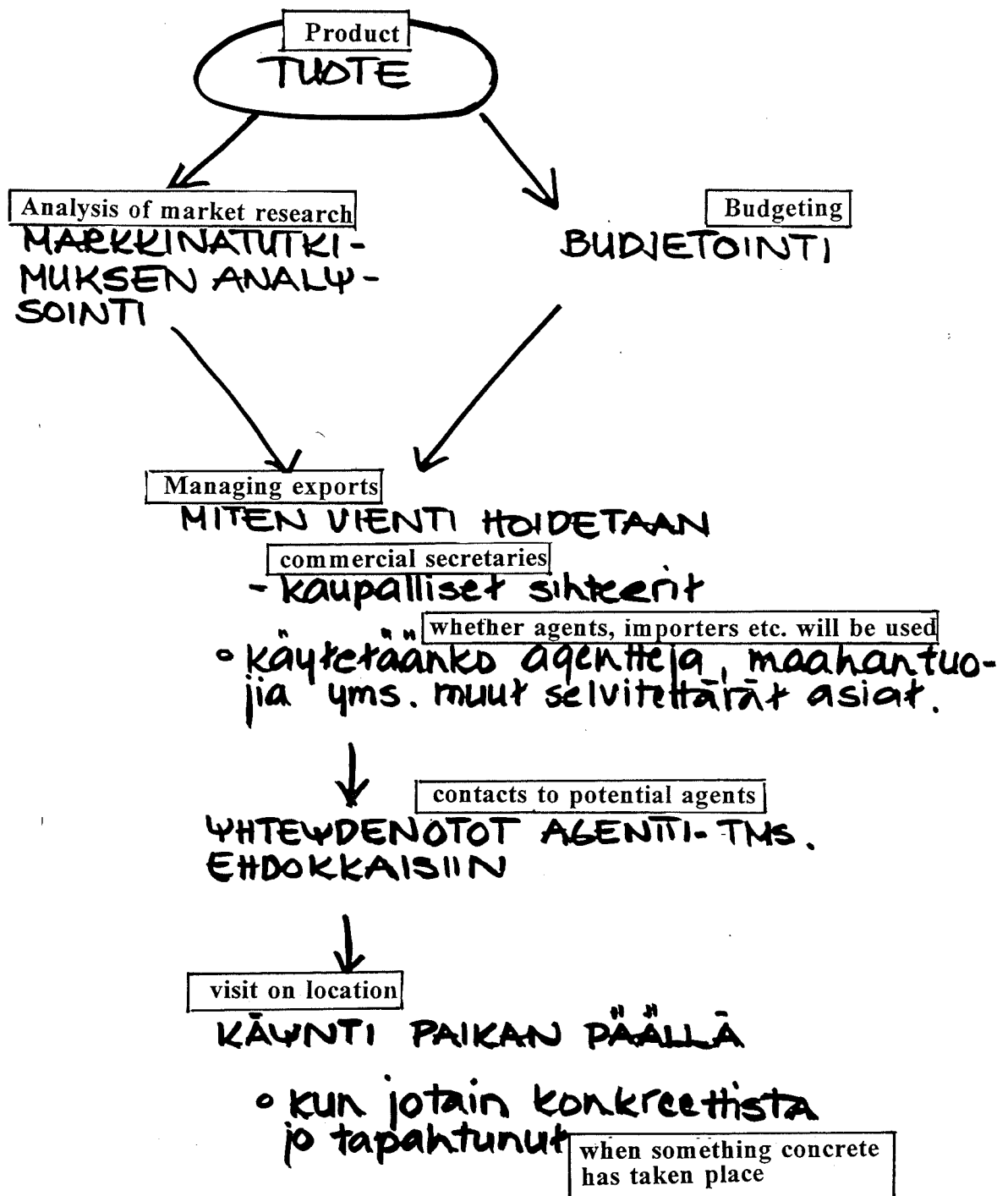
1.           What have you learnt about VAT? How does your conception now differ from the one you had in the beginning? Do you think you have learnt?
2.           Evaluate your learning in a scale excellent-good-satisfactory-poor. Justify, please!
3.           Was the thematic unit meaningful as to contents, or was it not? Was the implementation meaningful or not? What is your opinion about replacing an exam by reports - was it a good or bad solution as to learning? Justify again!
4.           How could this thematic unit be developed?
5.           Was there something that remained hazy? What was it? Why did it remain hazy?
6.           What else would you like to say?

APPENDIX 19a: AN ORIENTATION BASIS BY HS STUDENTS  
(1993-1994)  
(FINANCING)



Translation from the original Finnish by the researcher

APPENDIX 19b: AN ORIENTATION BASIS BY H'S STUDENTS  
(1993-1994)  
(INTERNATIONALISATION)



Translation from the original Finnish by the researcher

## **APPENDIX 20: DESCRIPTION OF THE BEGINNING OF F'S COURSE ON INTERNATIONALISATION (1993-1994)**

The students have got their "own companies" which so far have operated on the home market. Now they plan extension abroad.

### *Phase 1: Learning task*

How will this extension influence the activity of your companies?

### *Phase 2: Learning task*

Students are comparing answers of different groups thus trying to figure out common features in them. After that they ought to make suggestions about how these companies should proceed.

### *Phase 3a: Questionnaire*

A questionnaire is made to the students to find out how they react to this method of beginning a new unit in learning:

What do you think about this kind of beginning of a course? For example, did you learn anything new? Did you consider it interesting/usual/boring? Could we have done it in a more student-centered way? Do you have any suggestions about how to start with a new course?

### *Phase 3b: Answers to the questionnaire*

In answers of 31 students following features came up:

- \* Almost 20 students had a positive attitude towards this kind of work in general, and 5 persons fairly positive. 5 students did not have an opinion, and 3 persons did not like this at all. \* More than half of the students were of the opinion that this method develops one's thinking.
- \* Two thirds of the students considered groupwork as a good method and following aspects were presented:

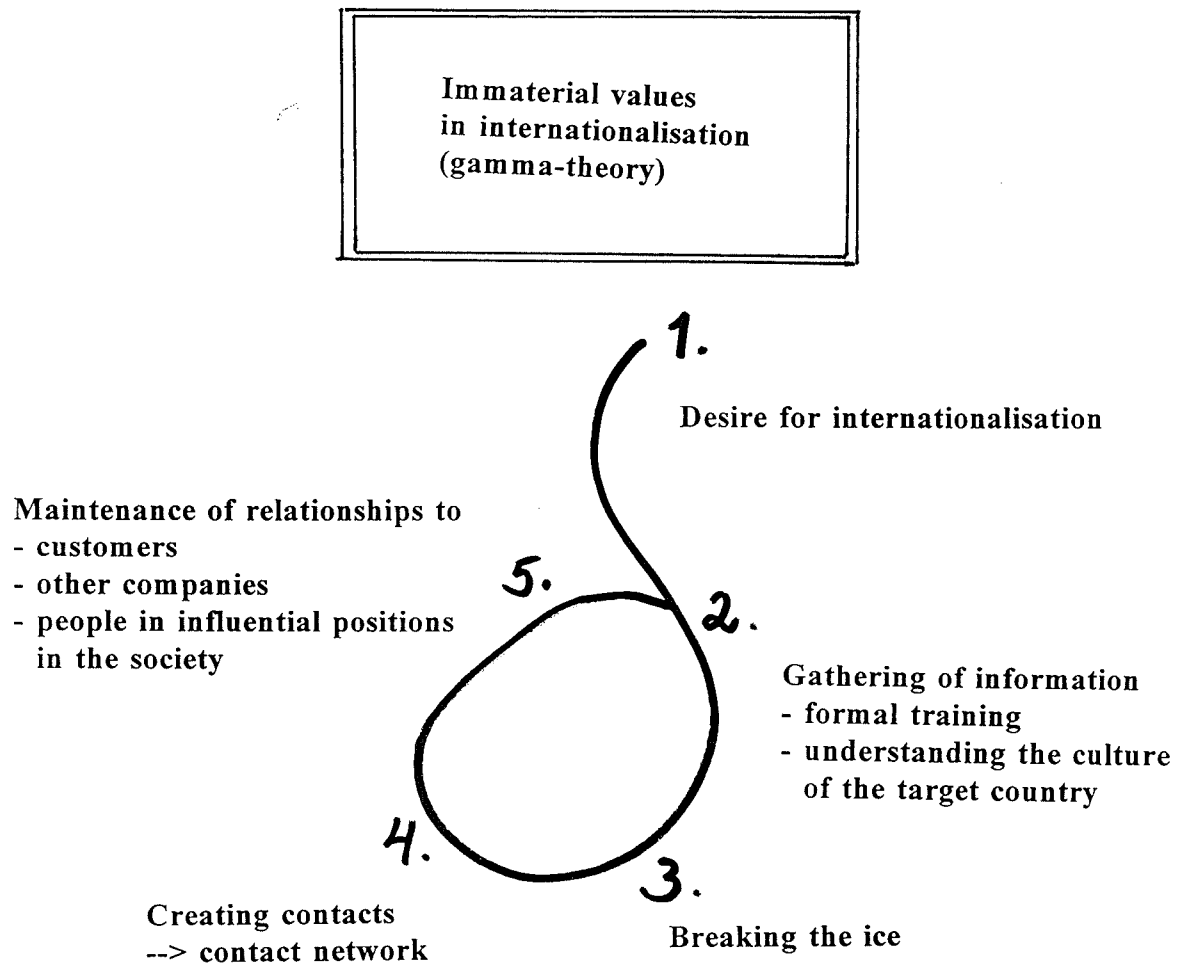
- different thoughts create new views and ideas
- the thoughts of others make one's own thoughts move
- groupwork is important for working life
- there was no marking - thoughts could fly freely
- it is easier to tell one's opinion in a group than in a big class; "this makes me more active"
- a group makes more than one person
- makes me learn better
- "I could get confidence with my own thoughts"

\* Almost a third of the respondents required information and being taught before they can make learning tasks like this. They "cannot find right answers."

Most of the answers concentrated on feelings whether they had a nice time, or they dealt with issues of groupwork, or emphasised own thinking. Quite a few (in fact, six students) said something about the contents and idea of the method itself (that the teacher was after in particular):

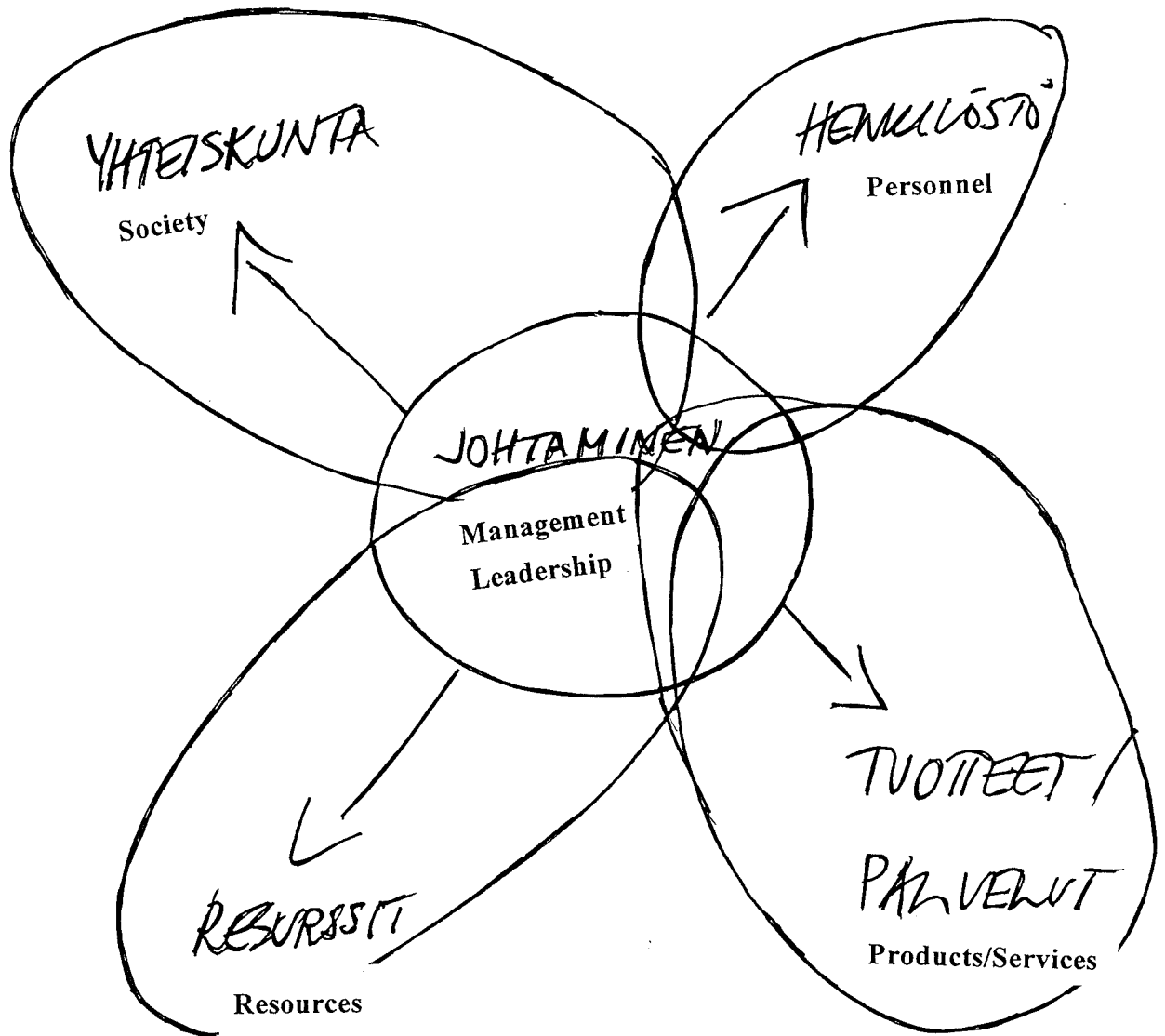
- 1) It is challenging to make a pattern of one's own for activity.
- 2) It is crucial to keep up with the essentials.
- 3) In this way one can make some kind of image about the topic which perhaps makes the topic easier to understand later, and then in more detail.
- 4) A preliminary acquaintance raises interest and one's own ideas until the proper right answers are to come.
- 5) It is better to think independently what might be important than to look for it in the textbook.
- 6) In this way one becomes better acquainted with a new topic. This is better than just reading a chapter from the textbook.

# **APPENDIX 21: AN ORIENTATION BASIS BY F'S STUDENTS (1993-1994)**



Translation from the original Finnish by the researcher

**APPENDIX 22: A SPONTANEOUS ORIENTATION BASIS BY A  
STUDENT OF A (1994-1995)**



**APPENDIX 23: A COLLABORATIVE ORIENTATION BASIS BY A'S  
STUDENTS (1994-1995)**

Buying behaviour model of a theatre-goer

# *Teatterissa kävijän ostokäyttäytymismalli*

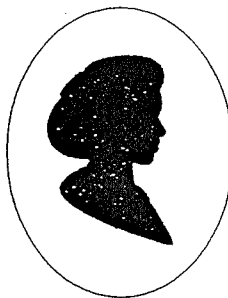


- asuinpaikka  
- ikä  
- sukupuoli  
- ammatti  
- koulutus  
- kulumustot-  
tumat

- domicile  
- age  
- sex  
- profession  
- education  
- consumer habits

## *Demografiset tekijät*

Demographic factors

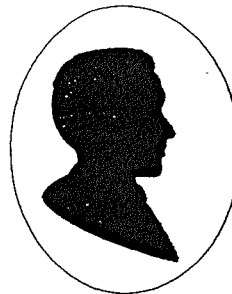


- elämäntilanne  
- ajankäyttö  
- mielipidejohtajat  
- viiterymä  
- viikonpäivä

- life situation  
- time management  
- opinion leaders  
- reference group  
- day of the week

## *Sosiaaliset tekijät*

Social factors



- arvot  
- asenteet

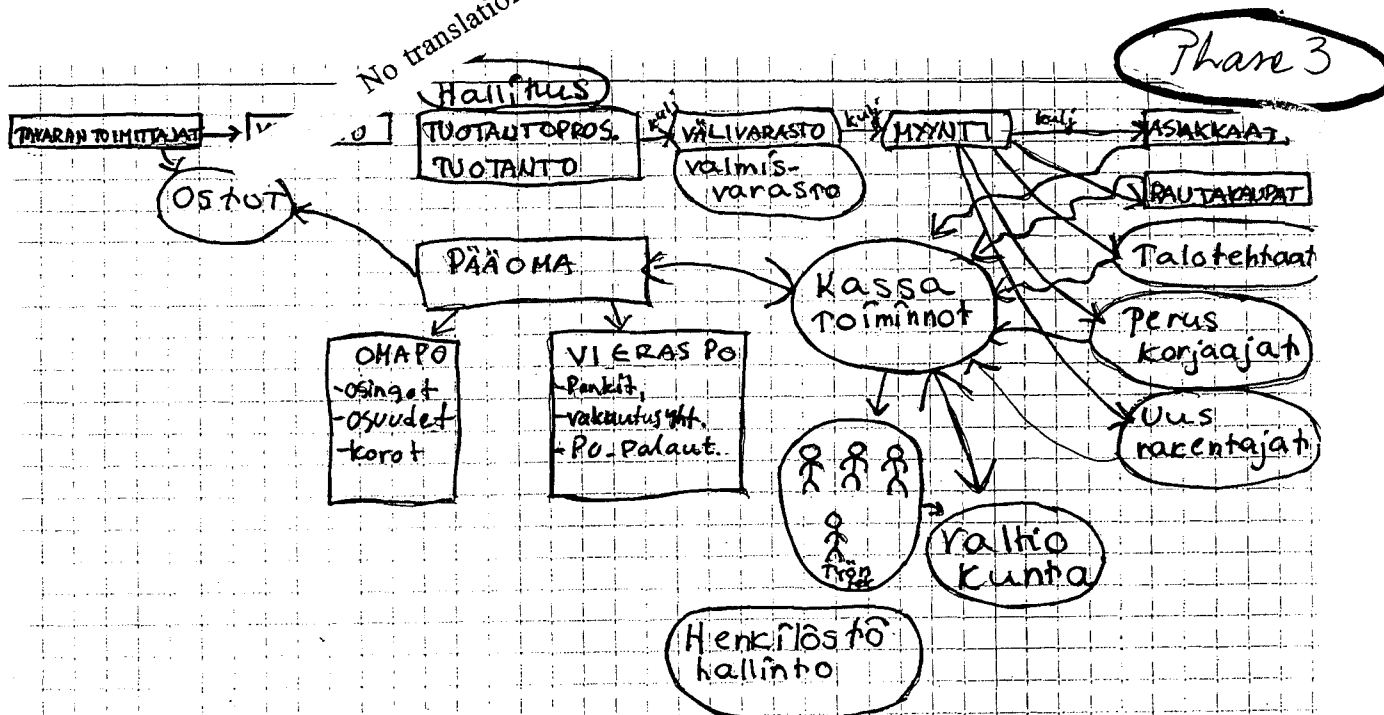
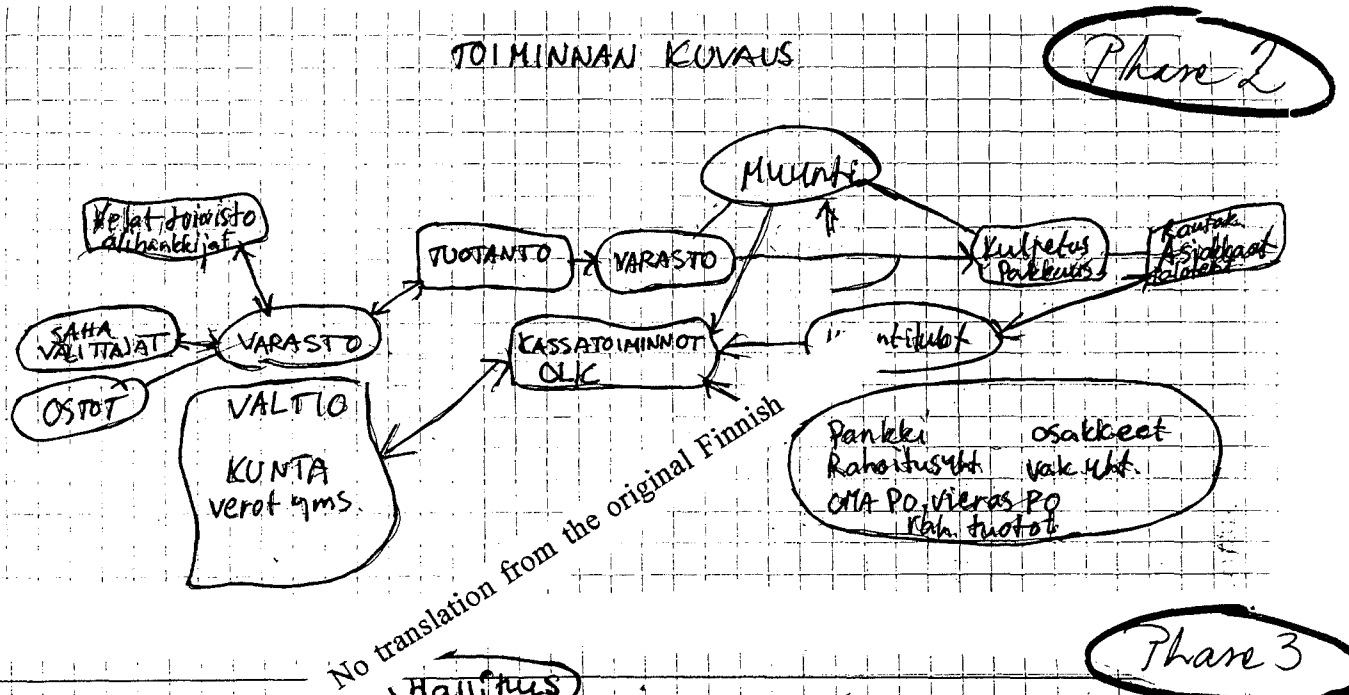
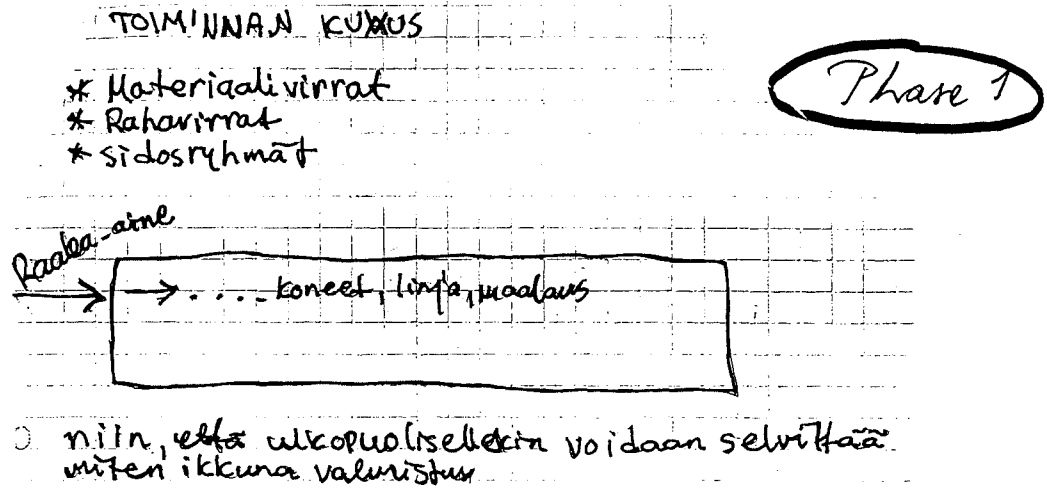
- values  
- attitudes

## *Psykologiset tekijät*

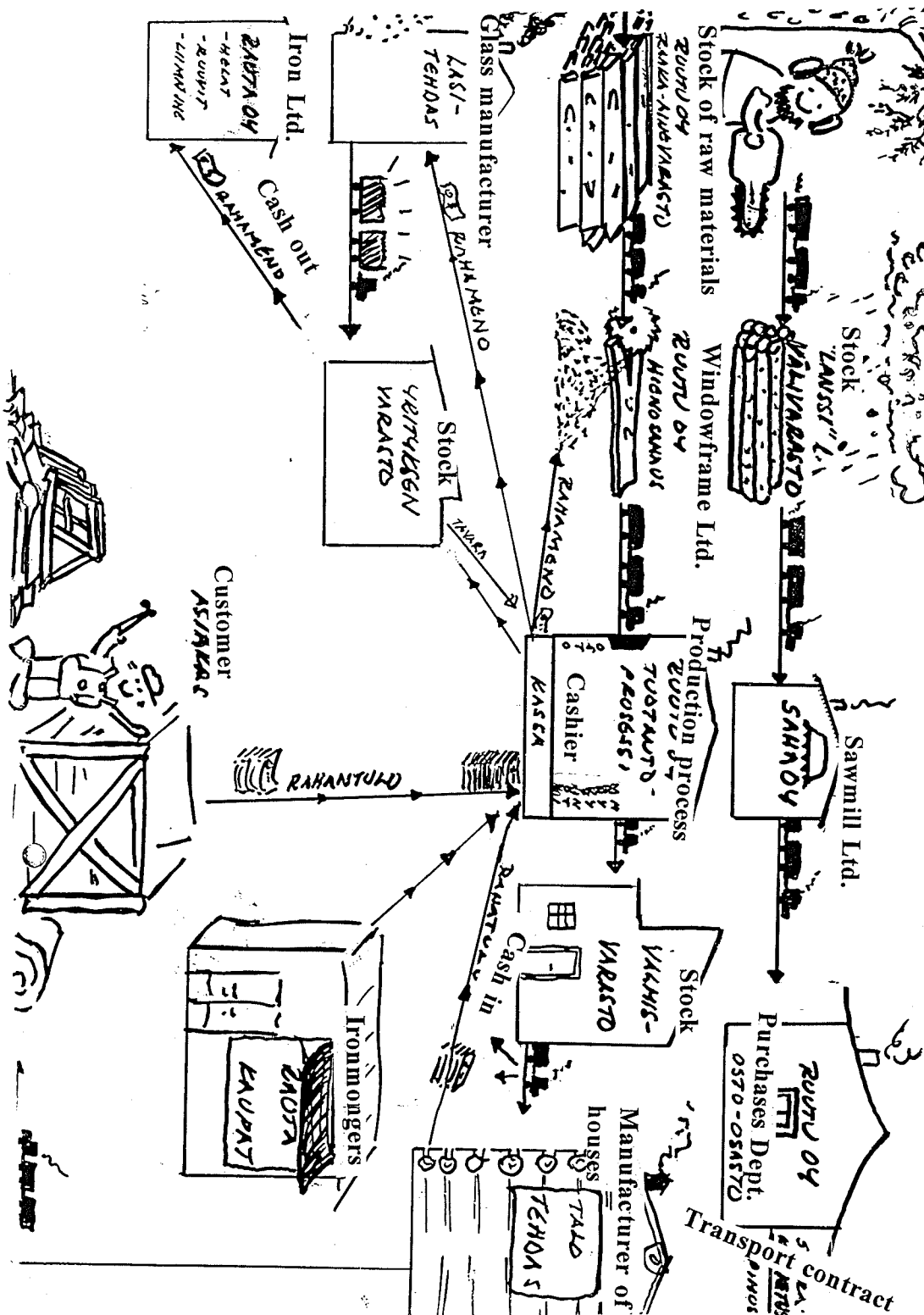
Psychological factors



# APPENDIX 24: A SET OF DEVELOPING ORIENTATION BASES BY CS STUDENTS (1994-1995)



**APPENDIX 25: A COMPREHENSIVE ORIENTATION BASIS BY C'S STUDENTS (1994-1995)**



Translation from the original Finnish by the researcher (simplified)

## APPENDIX 26: A LEARNING TASK BY E (1994-1995)

In these days [the Independence Day was near] we may think not only of the independency of our country, but also individual independence, freedom and responsibility. As to personnel management one could speak about need of management and control, nature of leadership, and division and taking of responsibility.

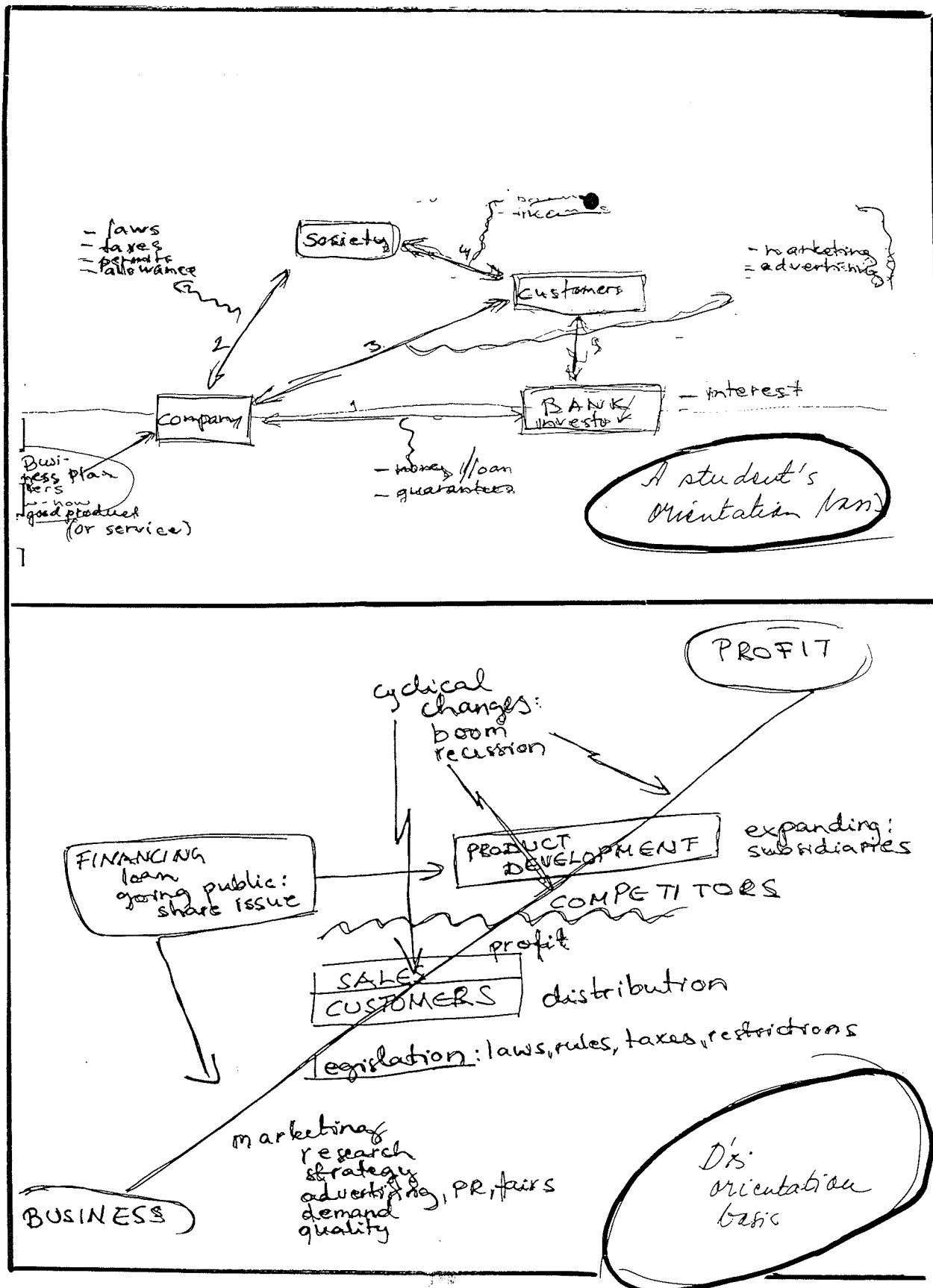
With this distance learning task we try to find out what this is all about. Your task is to read and think about some texts. There is one newspaper article about working life, then a chapter of a book on leadership, and finally some philosophy about the human nature.

By contemplating about the human nature and activity, the task aims at discerning useful thoughts about causes and effects of one's own behaviour and of the behaviour of other people. Of course there is the idea in the background that a human being is the object and actor of administration and leadership.

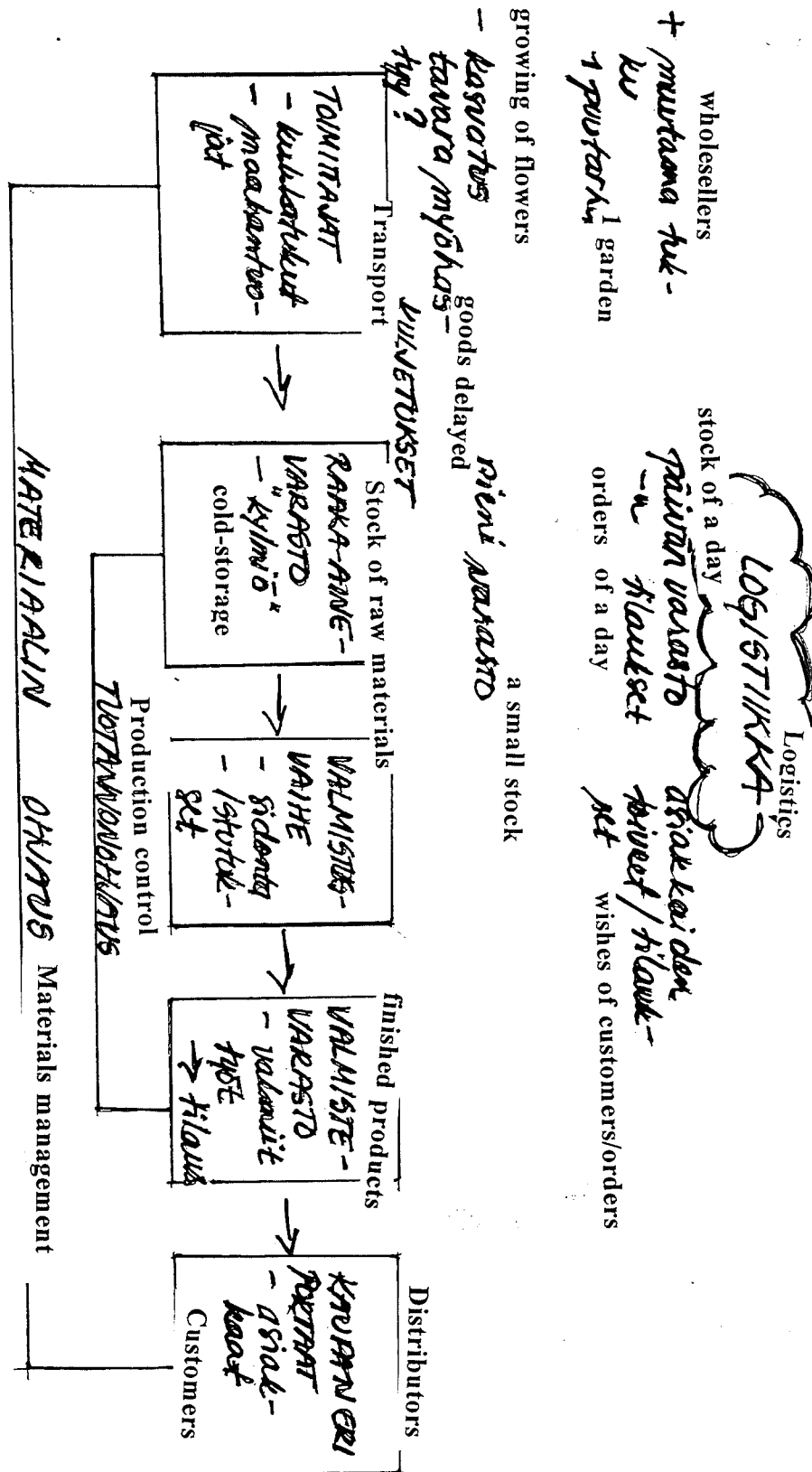
### Tasks

- 1 Read first the article "Psychological understanding needed in working life" and make a SWOT-analysis about the working life it describes. What seem to be the major strengths and weaknesses, and opportunities and threats in working life?
- 2 Read the chapter [a book on leadership is mentioned] of the book and answer to questions attached [excluded here].
- 3 Read the philosophic texts and answer the following questions:
  - a) What is existentialism?
  - b) What is a human being's responsibility according to Sartre?
  - c) Who sets the limits to human freedom?
  - d) Who determines the future of an individual (according to existentialism)?
  - e) Is it possible to implement ideas of existentialism at work sites, would it be useful, and what do you think about consequences?
  - f) Could you detect new opportunities from the texts of 2) and 3) as to SWOT of the point 1)? What about weaknesses and threats?
  - x) Are you an existentialist? Why? Why not?
  - xx) Give your opinion about these tasks!

**APPENDIX 27: ORIENTATION BASES BY D AND HER STUDENTS  
(1994-1995)**

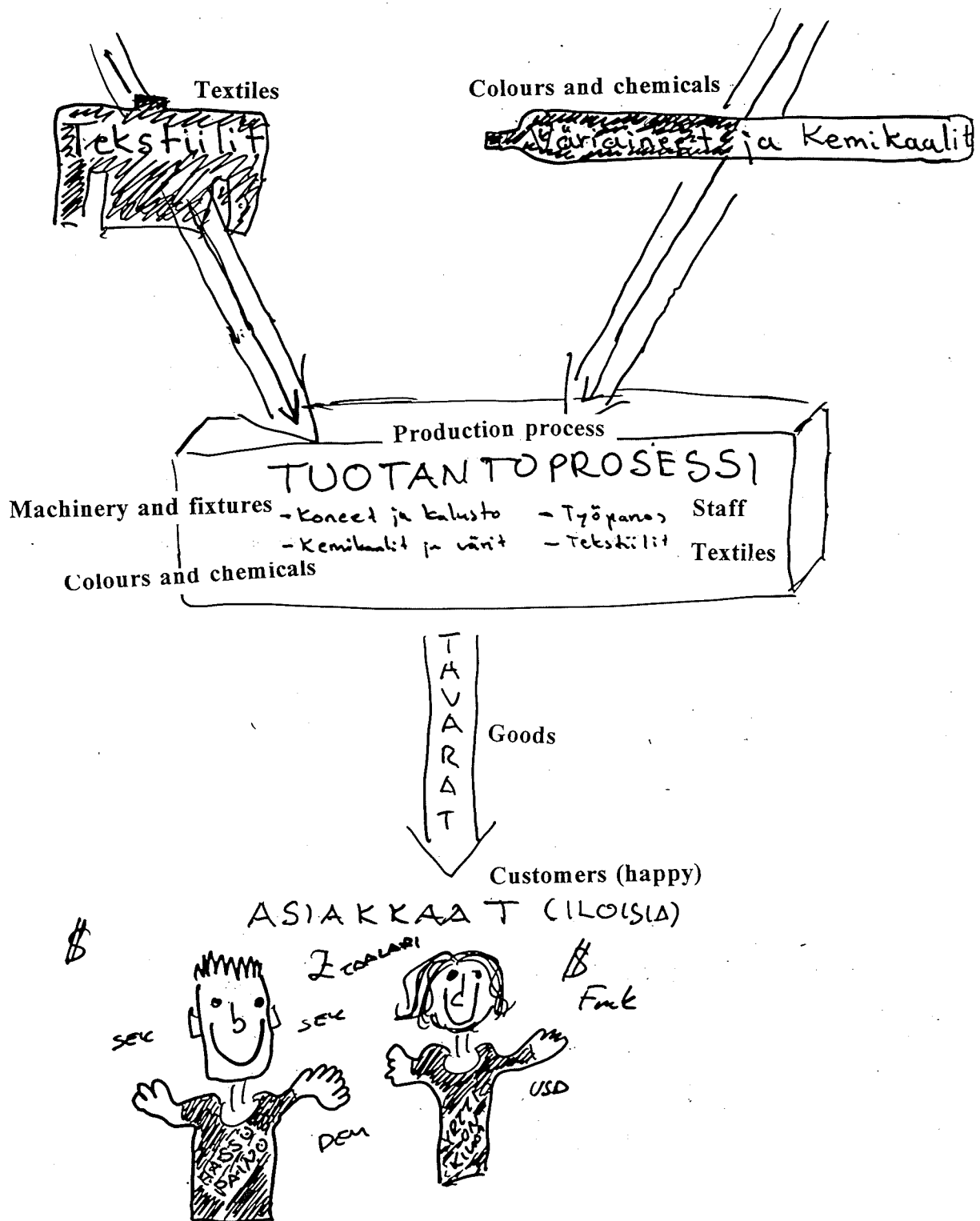


APPENDIX 28a: TWO ORIENTATION BASES, QUESTIONNAIRE  
AND DISCUSSION (F'S STUDENTS) (1994-1995)



Translation from the original Finnish by the researcher (simplified)

APPENDIX 28b: TWO ORIENTATION BASES, QUESTIONNAIRE  
AND DISCUSSION (F'S STUDENTS) (1994-1995) (continued)



Translation from the original Finnish by the researcher

**APPENDIX 28c: TWO ORIENTATION BASES, QUESTIONNAIRE  
AND DISCUSSION (F'S STUDENTS) (1994-1995) (continued)**

**Questionnaire and discussion (14 December, 1994)**

The students (21 persons) had been drawing orientation bases based on three questions: (1) A comprehensive view of the logistic functions of "their" company? (2) What kind of problems do the several phases include? (3) Which decisions are needed from the entrepreneur in each phase? Now the students were to tell their opinion about making these figures. The questionnaire and discussion were conducted by the analyst.

**QUESTIONS AND ANSWERS:**

(Frequencies are to be seen in parentheses; the answers were partly overlapping.)

1

**WHAT DO YOU THINK WERE THE REASONS WHY YOU WERE  
ASKED TO MAKE THESE FIGURES?**

- \* To understand the entirety of logistics, its basic ideas, and internal relationships (10)
- \* To enhance learning (mainly no further specifications) (8)
- \* To enhance own thinking (6)
- \* Collaboration or groupwork (2)
- \* To understand the students' various perspectives (1)
- \* To enhance learning in an independent way. (1)
- \* "I don't know" (2)

**WHAT WAS PROBLEMATIC IN MAKING OF THE FIGURES?**

- \* How to begin? (6)
- \* Poor knowledge about theory and practice of logistics. (6)
- \* Outlines and analysis of the entirety of logistics. (5)
- \* What to consider in the figure. (2)
- \* No problems (2)
- \* Logistics is different in service business (from factories, for example). (1)
- \* No acquaintance with the idea, neither with the themes needed. (1)
- \* Not time enough. (1)
- \* "You more or less chat with your friends only." (1)
- \* Figuring out relevant problems (1)
- \* How to put it on the paper (1)
- \* "I do not remember any more" (1)

3

# WHAT DO YOU THINK WAS NICE WHEN MAKING THESE FIGURES?

- \* Collaboration in small groups (8)
- \* Thinking and doing on one's own. (4)
- \* Understanding something (2)
- \* It was something rational and practical. (1)
- \* Concretism (1)
- \* Constructing a figure (1)
- \* Creativity (1)
- \* Managing how to do the figure (1)
- \* For the sake of variety (1)
- \* Nothing was nice in it. (1)

4

# HOW DID YOU DISCOVER ELEMENTS FOR THE FIGURE?

\* Own thinking was the most typical answer. Furthermore: textbook, other students, teacher, other subject matters, experience from working life.

5

# WOULD YOU NOW MAKE THE FIGURE IN ANOTHER WAY?

- \* "No, it is fine as it is." (10)
- \* Yes (7)
- \* We do not know. (4)

6

# WHAT IS THE ROLE OF THE TEACHER IN THIS PROCESS?

A typical answer: "The teacher needs to explain the beginning very clearly and in an interesting way, so everyone can start working on their own. When the process is running, the teacher needs to give ideas and advice, but she should not be pushy. She can give a start, nothing more."



## APPENDIX 29: A MODEL BY G'S STUDENTS (1995-1996)

ABM = Activity-Based Management  
 ABC = Activity-Based Costing

## PROBLEMS

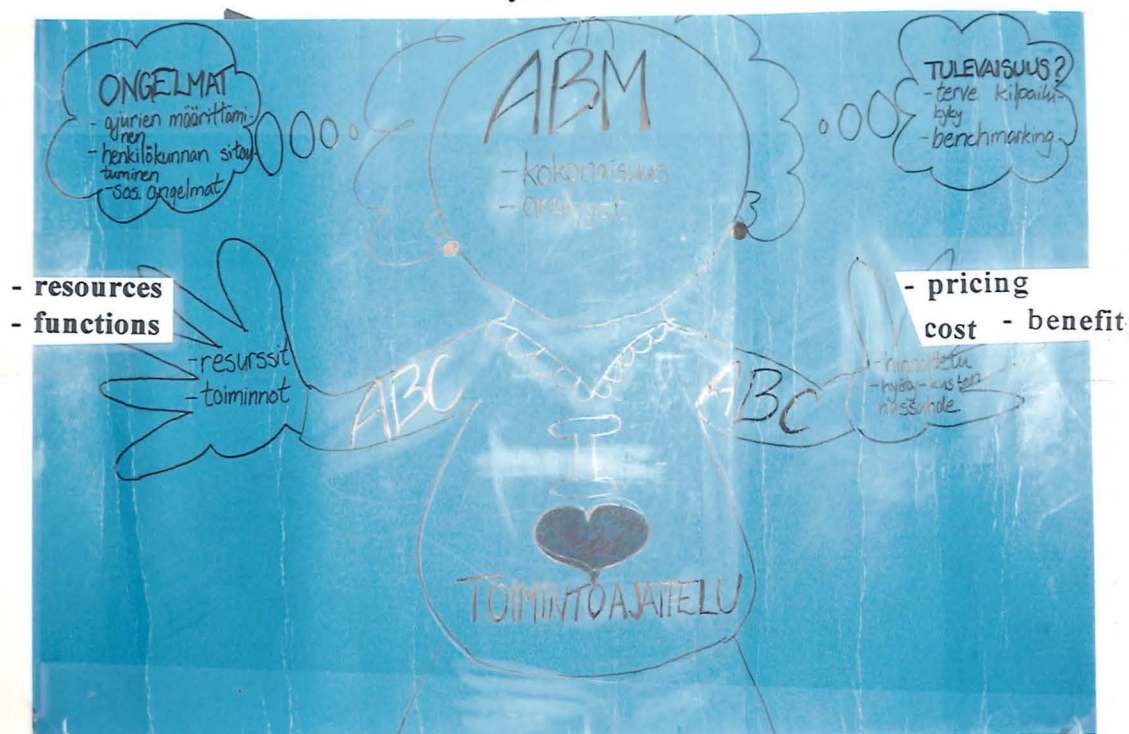
- defining drivers
- commitment of the personnel
- social problems

## ABM

- comprehension
- analysis

## FUTURE?

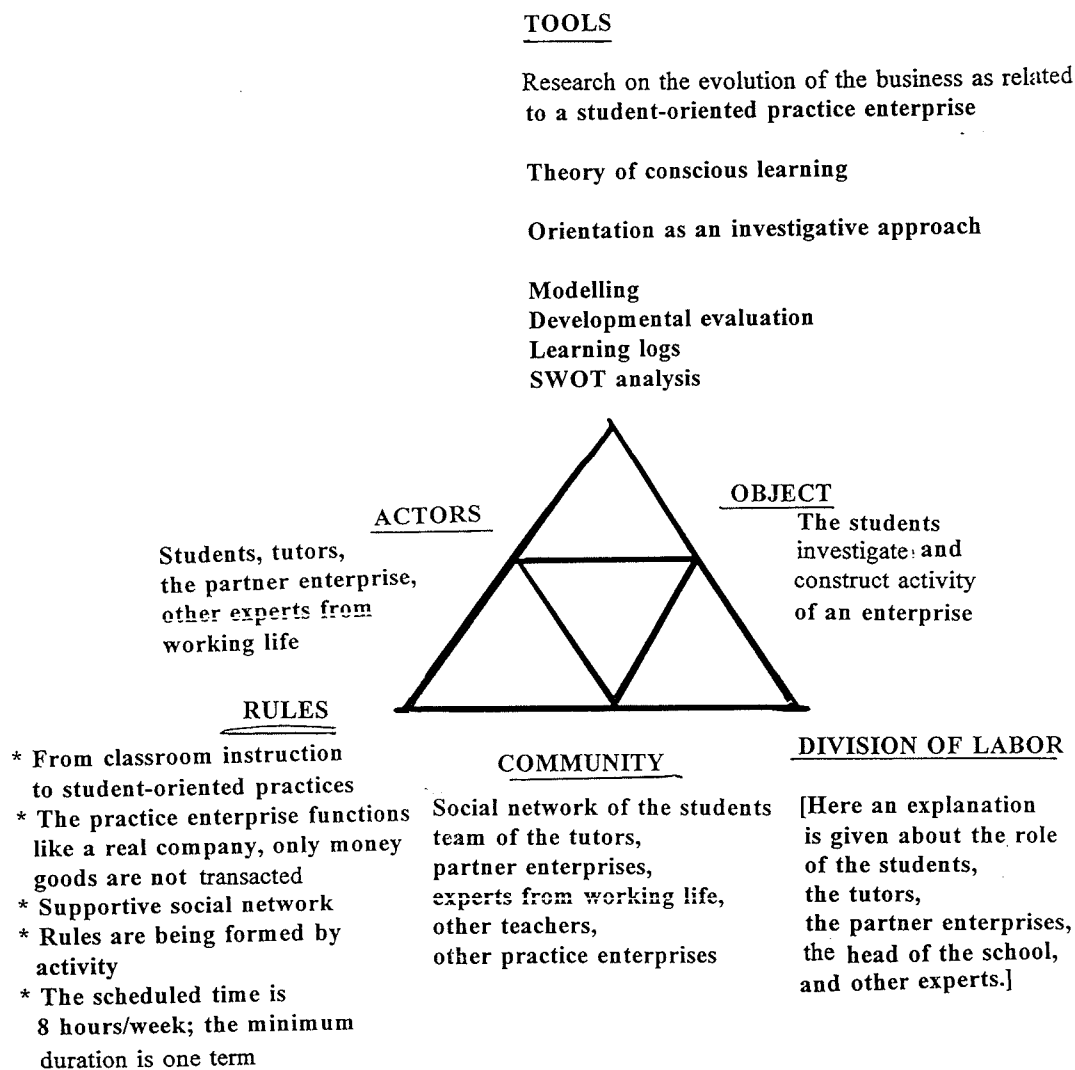
- sound competitiveness
- benchmarking



## ACTIVITY-BASED THINKING

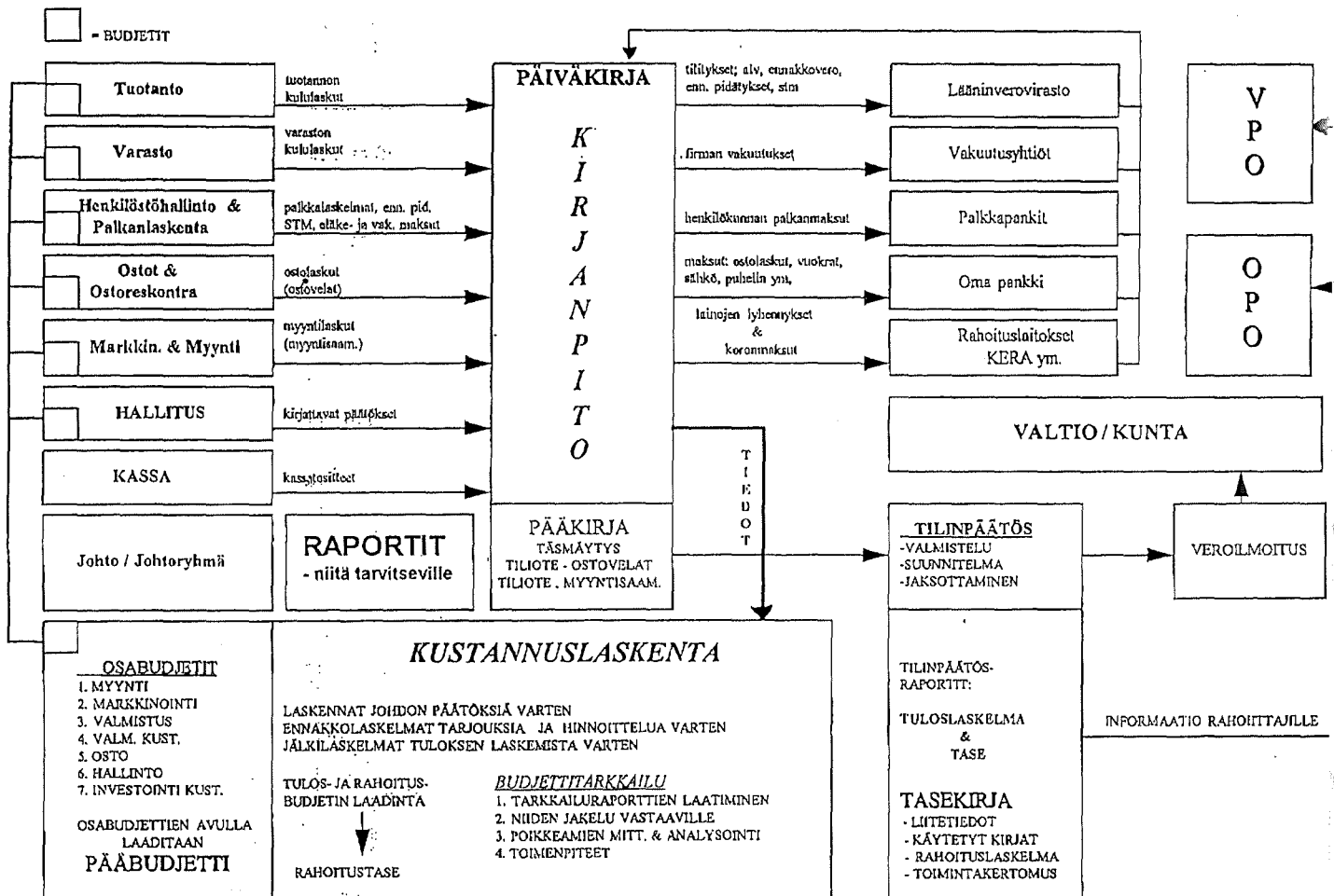
Translation from the original Finnish by the researcher

# APPENDIX 30: C'S MODEL ABOUT LEARNING ACTIVITY (1995-1996)

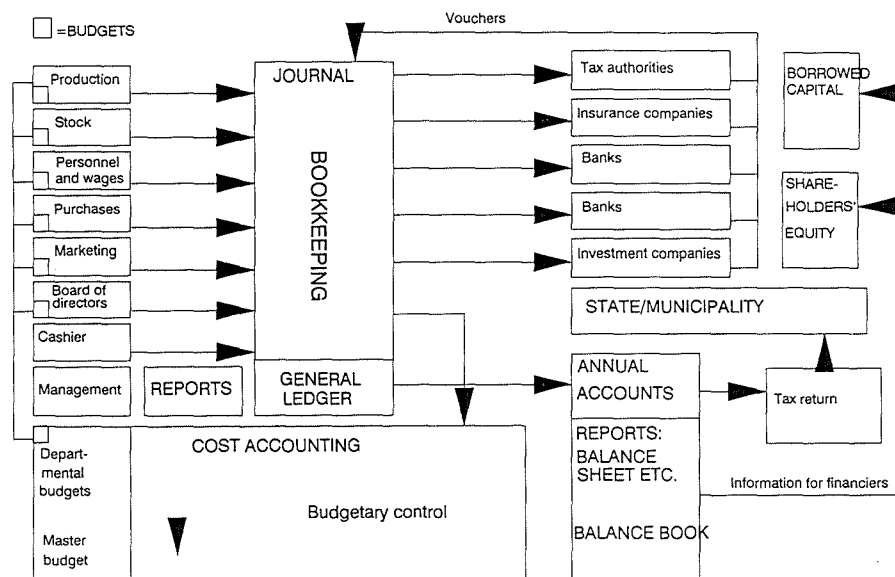


Translation from the original Finnish by the researcher

## APPENDIX 31: A MODEL BY C'S STUDENT (1995-1996)



Translation from the original Finnish by the researcher (simplified)



# APPENDIX 32: SUMMARY OF THE RESULTS: THE MAIN IDEAS OF THE TEACHER INFORMANTS

## AN INDICATIVE SUMMARY OF THE RESULTS

FEATURES	INFORMANT Study round	A			B			C			D			E			G			H			F			J		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
1. Orientation is a tool in the teacher's practices		+												(+)												(+)*	+	
2. Definition of orientation: "common" features		+						+						(+)												+		+
3. Orientation basis is conceived as a tool, mainly as a model		+						+																		+		(+)
4. Active use of tangible models		+						+																				(+)
5. Modification of models		+						+																				(+)
6. The students have an active role in modelling		+						+																				(+)
7. The students have an active role in general		+						+						(+)														+
8. Orientation <-> entire cycle		+						+																				+
9. Orientation <-> motivation								+																				+
10. Orientation <-> evaluation		+						+																				+
11. Object a large activity		?	+					+						(+)														(+)
12. Speaks about collaboration in school (any sign)								+																				+
13. Needs of pedagogics (any sign)								+																				+

### MARKS AND SIGNS:

**+** = existing very clearly (emphasis etc.)

**+** = existing

**(+)** = existing, vague signs

**+**? = existing, but the analyst was uncertain

**?** = possibly existing (the analyst is uncertain)

**\*** = change, appeared in the course of the round

### REMARKS:

#### General:

In a condensed table it is not possible to describe the various nuances of the results. To find out about these, one needs to get acquainted with the entire research report. This kind of categorisation and representation is violent and mechanistic, a lot of information gets lost. The analyst strongly underlines the indicative character of this summary.

#### Item-related:

- No distinction has been made here how explicit or intensive a tool is. The assertion is mainly based on clear indicators in the teacher's practice, but also on plain oral statements of the informants, e.g. in Section 9.7.
- Common definition of the concept of orientation in Sections 7.1, 8.1, 9.1.
- Difficult to define. Demarcated unclearly. Activity is here conceived as the students doing quite a lot on their own, without the teacher's deliberate "teaching"; the students take the initiative. It is difficult to express the extent of activity.
- Difficult to define. The feature came to exist with everyone, but with most of them it was implicit, not emphasised.
- Needs that were implied by the informants as to one's own.

Marked when indicated the first time. Assumed to be existing further, unless otherwise stated (items 12 and 13 excluded)

**APPENDIX 33: THE RESEARCHER'S ARTICLES, PUBLICATIONS AND CONFERENCE PAPERS RELATED TO THE THESIS IN 1993-1997**

Torvinen, L., Härkäpää, L. & Tommila, T. (1992/1994). *Evaluation and Orientation - Teachers in a Process*. Publications of the Teacher Education Department of the Finnish Business College Nr. 2. Helsinki: SLK.

Torvinen, L. (1995). Developing the Orientation Process in Business Education. Paper presented at the Third International Congress on Activity Theory, Moscow, June 26-30.

Torvinen, L. (1996). Developing orientation in business education. *Nordisk Pedagogik. Journal of Nordic Educational Research*, 16 (3), 144-154.

Torvinen, L. (1996). Hur har utvecklingen fortskridit? Verksamhetsteori och arbetsforskning som hjälpmedel i handelsbranschens utbildning. *Skolen i Norden*, 1996:1.

Torvinen, L. (1996). Relating working life with teaching and learning. In B. Petersson (Ed.), *Skolad for livslångt lärande*. Rapport från den 15:e nordiska yrkespedagogiska konferensen, 17-19 June 1996, Göteborg. Göteborg: Institutionen för yrkespedagogik, Göteborgs Universitet.

Torvinen, L. (in press). Activity Theoretical Orientation. In J. M. Pieters & J. Brandsma, *Complex Teaching-Learning Environments in Education for Business in Europe*. Utrecht: Lemma.

Torvinen, L. (1997). Miten kehitys kehittyi? Toiminnan teoria ja kehittävä työntutkimus kauppaopetuksen välineenä. [How was development developing? Activity theory and developmental work research as tools of business education]. In Engeström, Y. & Lambert, P., *Kehittävä työntutkimus ammatillisissa oppilaitoksissa [Developmental work research in vocational educational institutes]*. Helsingin Yliopiston kasvatustieteen laitoksen tutkimuksia 150. [Publications by the Institute of Education, University of Helsinki, Nr. 150]. Helsinki: Helsingin Yliopisto.

## REFERENCES

- Achtenhagen, F. & John, E.G. (Hrsg.) (1992). *Mehrdimensionale Lehr- und Lern-Arrangements. Innovationen in der kaufmännischen Aus- und Weiterbildung*. Wiesbaden: Gabler.
- Arievitch, I. & van der Veer, R. (1995). Furthering the Internationalization Debate: Gal'perin's Contribution. *Human Development*, 38, 113-126.
- Asmolov, A.G. (1986-87). Basic Principles of a Psychological Analysis in the Theory of Activity. *Soviet Psychology*, XXV (2), 78-102.
- Bakhurst, D. (1990). Social Memory in Soviet Thought. In D. Middleton & D. Edwards (Eds.), *Collective Remembering*. London: Sage.
- Bernstein, B. (1993). Foreword in H. Daniels (Ed.), *Charting the Agenda. Educational Activity after Vygotsky*. London: Routledge.
- Bock, H. (1989). *Die Lerntheorie P. Ja. Gal'perins und ihre Anwendbarkeit im Fremdsprachenunterricht*. München: Otto Sagner.
- Bruner, J. (1986). *Actual Minds, Possible Words*. Cambridge, Mass.: Harvard University Press.
- Bryman, A. & Burgess, R.G. (Eds.). (1994). *Analyzing qualitative data*. London: Routledge.
- Burgess, T. (1993). Reading Vygotsky. In H. Daniels (Ed.), *Charting the Agenda. Educational Activity after Vygotsky*. London: Routledge.
- Buzan, T. (1980). *Use your head*. London: BBC
- Chaiklin, S. (1993). Understanding the social scientific practice of *Understanding practice*. In S. Chaiklin & J. Lave (Eds.), *Understanding practice. Perspectives on activity and context*. Cambridge: Cambridge University Press.
- Cole, M. (Ed.). (1977). *Soviet Developmental Psychology*. New York: M.E. Sharpe.
- Cole, M. (1981). Preface to J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology*. Armonk, NY: M.E. Sharpe
- Cole, M. (1985). The zone of proximal development: where culture and cognition create each other. In J.V. Wertsch (Ed.), *Culture, communication and cognition: Vygotskian perspectives*. Cambridge, Mass.: Cambridge University Press.

Cole, M. (1988). Cross-cultural research in the socio-historical tradition. *Human Development*, 31, 137-157.

Cole, M. & Engeström, Y. (1993). A cultural-historical approach to distributed cognition. In G. Salomon (Ed.), *Distributed Cognitions: Psychological and Educational considerations*. Cambridge: Cambridge University Press.

Cole, M. & Engeström, Y. (1995). Comments to Lucariello's article [Lucariello, J. (1995)]. *Human Development*, 38, 2-18.

Craik, K.J.W. (1943). *The Nature of Explanation*. Cambridge: Cambridge University Press.

Daniels, H. (Ed.). (1993). *Charting the Agenda. Educational Activity after Vygotsky*. London: Routledge.

Daniels, H. (Ed.). (1996). *An Introduction to Vygotsky*. London: Routledge.

Davydov [Dawydow], W. (1977). *Arten der Verallgemeinerung im Unterricht*. Berlin: Volk und Wissen.

Davydov, V.V. (1982). The Psychological Structure and Contents of the Learning Activity in School Children. In R. Glaser & J. Lompscher (Eds.), *Cognitive and Motivational Aspects of Instruction*. Berlin: VEB.

Davydov, V.V. (1988a). The Basic Concepts of Contemporary Psychology. (Chapter 1 in Problems of Developmental Teaching). *Soviet Education*, XXX (8), 15-43.

Davydov, V.V. (1988b). Learning Activity in the Younger School-age Period. (Chapter 5 in Problems of Developmental Teaching). *Soviet Education*, XXX (9), 3-47.

Davydov, V.V. (1990). The Content and Unsolved Problems of Activity Theory. Paper presented 22 May 1990 at the 2nd International Congress on Activity Theory, Lahti, Finland.

Davydov, V.V. (1995). Toiminnan teoria yhteiskunnallisena muutostieteenä. [Activity Theory as Societal Transformative Science]. Lecture in the Centre of Activity Theory and Developmental Work Research, University of Helsinki, 14 December, 1995.

Davydov, V.V. & Radzikhovskii, L.A. (1985). Vygotsky's Theory and the activity-oriented approach in psychology. In J.V. Wertsch (Ed.), *Culture, communication and cognition: Vygotskian perspectives*. Cambridge, Mass. Cambridge University Press.

- Davydov, V.D. & Zinchenko, V.P. (1993). Vygotsky's Contribution to the Development of Psychology. In H. Daniels (Ed.), *Charting the agenda. Educational activity after Vygotsky*. London: Routledge.
- Denzin, N. (1970). *The Research Act in Sociology*. London: Butterworth.
- Elkonin, B.D. (1993). The Nature of Human Action. *Journal of Russian and East European Psychology*, 31 (3), 22-46.
- Ely, M., Anzul, M., Friedman, T., Garner, D. & McCormack Steinmetz, A. (1991). *Doing Qualitative Research. Circles within Circles*. London: Falmer Press.
- Engeström, Y. (1981). *Mielekäs oppiminen ja opetus*. [Meaningful learning and instruction.] Julkaisusarja B nro 17. Helsinki: Valtion koulutuskeskus.
- Engeström, Y. (1982). *Perustietoa opetuksesta*. [Fundamentals of Instruction]. Helsinki: Valtion Painatuskeskus.
- Engeström, Y. (1983). *Oppimistoiminta ja opetustyö*. [Learning activity and instructional work]. Tutkijaliiton julkaisusarja 24. Helsinki: Tutkijaliitto.
- Engeström, Y. (1984). *Orientointi opetuksessa* [Orientation in Instruction]. Helsinki: Valtion painatuskeskus.
- Engeström, Y. (1986). The concept of content in phenomenography and dialectics. In P.D. Ashworth, A. Giorgi & A.J.J. Koning (Eds.), *Qualitative Resesarch in Psychology*. Pittsburgh: Duquesne University Press.
- Engeström, Y. (1987). *Learning by expanding*. Helsinki: Orienta-Konsultit.
- Engeström, Y. (1990a). Activity theory and individual and social transformation. Opening address at the Second International Congress for Research on Activity Theory, 21-25 May, Lahti, Finland.
- Engeström, Y. (1990b). *Learning, working and imagining*. Helsinki: Orienta-Konsultit.
- Engeström, Y. (1991). Non scholae sed vitae discimus: Toward overcoming the encapsulation of school learning. *Learning and Instruction* 1, 243-259.
- Engeström, Y. (1993). Developmental studies of work as a testbench of activity theory: The case of primary care medical practice. In S. Chaiklin



& J. Lave (Eds.) *Understanding practice. Perspectives of activity and context*. Cambridge: Cambridge University Press.

Engeström, Y. (1994). *Training for change: New approach to instruction and learning in working life*. Geneva: International Labour Office.

Engeström, Y. (1995). *Kehittävä työntutkimus. Perusteita, tuloksia ja haasteita*. [Developmental work research. Fundamentals, results and challenges.] Helsinki: Painatuskeskus.

Engeström, Y., Hakkarainen, P. & Hedegaard, M. (1984). On the Methodological Basis of Research in Teaching and Learning. In M. Hedegaard, P. Hakkarainen & Y. Engeström (Eds.), *Learning and Teaching on a Scientific Basis. Methodological and Epistemological Aspects of the Activity Theory of Learning and Teaching*. Aarhus: Aarhus Universitet.

Fetterman, D.M. (1989). *Ethnography Step by Step*. Newbury Park, CA: Sage.

Gal'perin, P.I. (1968). Towards Research of the Intellectual Development of the Child. *International Journal of Psychology*, 3 (4), 257-251.

Gal'perin, P.Y. (1969). Stages in the Development of Mental Acts. In M. Cole & I. Maltzman (Eds.), *A Handbook of Contemporary Soviet Psychology*. New York: Basic Books.

Galperin, P.J. (1979). *Johdatus psykologiaan*. [Introduction to Psychology]. Helsinki: Kansankulttuuri.

Gal'perin, P.Ya. 1979-80. The Role of Orientation in Thought. *Soviet Psychology*, XVIII (2), 84-99.

Gal'perin, P.Y. (1982). Intellectual Capabilities among Older Preschool Children: On the Problem of Training and Mental Development. In W.W. Hartup (Ed.), *Review of Child Development Research*, Vol. 6. Chicago: University of Chicago Press.

Gal'perin, P. Ya. (1989a) (1957/1989). Mental Actions as a Basis for the Formation of Thoughts and Images. *Soviet Psychology*, 27 (3), 45-64.

Gal'perin, P. Ya. (1989b) (1974/1989). Organization of Mental Activity and the Effectiveness of Learning. *Soviet Psychology*, 27 (3), 65-82.

Gal'perin, P. Ya. (1989c). Study of the Intellectual Development of the Child. *Soviet Psychology*, 27 (3), 26-44.

- Galperin, P. Ia. (1992) (1977/1992). The Problem of Activity in Soviet Psychology. *Journal of Russian and East European Psychology*, 30 (4), 37-59.
- Gentner, D. & Stevens, A.L. (1983). Introduction. In *Mental models*. Hillsdale, New Jersey: Lawrence Erlbaum.
- Glaser, B. G. & Strauss, A.L. (1967). *The Discovery of Grounded Theory. Strategies for Qualitative Research*. Chicago: Aldine.
- Gutierrez, K., Rymes, B. & Larson, J. (1995). Script, Counterscript, and Underlife in the Classroom: James Brown versus Brown v. Board of Education. *Harvard Educational Review*, 65 (3), 445-471.
- Haavisto, V. (1990). *Suunnittelevan työtavan kehittäminen kauppaopettajakoulutuksessa*. [Developing an planning way of working in business teacher education.] Suomen Liikemiesten Kauppaopiston julkaisu nro 4. Helsinki: SLK.
- Haenen, J. (1989). Introduction. Pyotr Yakovlevich Gal'perin. *Soviet Psychology*, 27 (3), 3-6.
- Haenen, J. (1992). Introduction: Pjotr Gal'perin and the Content of Soviet Psychology. *Journal of Russian and East European Psychology*, 30 (4), 3-21.
- Haenen, J. (1996). *Piotr Gal'perin: Psychologist in Vygotsky's footsteps*. Commack, NY: Nova Science Publishers.
- Handy, C. (1986). *The Future of Work*. Oxford: Basil Blackwell.
- Handy, C. (1990). *The Age of Unreason*. London: Arrow Books.
- Handy, C. (1995a). *Beyond certainty. The changing worlds of organisations*. London: Hutchinson.
- Handy, C. (1995b). *The Empty Raincoat. Making Sense of the Future*. London: Arrow Books.
- Hanks, W.F. (1991). Foreword in J.Lave & E. Wenger, *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Hedegaard, M. (1988). *Skoleborns personlighedsudvikling set gennem orienteringsfagene*. Aarhus: Aarhus Universitetsforlag.
- Hedegaard, M. (1990). The zone of proximal development as basis for instruction. In L. Moll (Ed.), (1990). *Vygotsky and education: instructional implications and applications of sociohistorical psychology*. Cambridge: Cambridge University Press.

- Hedegaard, M., Hakkarainen, P. & Engeström, Y. (Eds.). (1984). *Learning and Teaching on a Scientific Basis. Methodological and Epistemological Aspects of the Activity Theory of Learning and Teaching*. Aarhus: Aarhus Universitet.
- Hildebrand-Nilshon, M. & Rüeckriem, G. (Eds.). (1988). *Proceedings of the 1st International Congress on Activity Theory*. Vol. 1-4. Berlin: System-Druck.
- Hood Holzman, L. (1985). Pragmatism and Dialectical Materialism in Language Development. In K. Nelson (Ed.), *Children's language*, Volume 5. Hillsdale, NJ: Lawrence Erlbaum.
- Hutchins, E. (1991). The Social Organization of Distributed Cognition. In L. B. Resnick, J. M. Levine & S. D. Teasley (Eds.), *Perspectives on Socially Shared Cognition*. Washington, DC: American Psychological Association.
- Hutchins, E. (1995). How a Cockpit Remembers its Speeds. *Cognitive Science*, 19, 265-288.
- Il'enkov, E.V. (1977). *Dialectical Logic. Essays on Its History and Theory*. Moscow: Progress.
- Il'enkov, E.V. (1982). *The Dialectics of the Abstract and the Concrete in Marx's Capital*. Moscow: Progress.
- Johnson-Laird, P.N. (1983). *Mental models*. Cambridge: Cambridge University Press.
- Joravsky, D. (1987). L.S. Vygotskii: The muffled deity of Soviet psychology. In M.G.Ash & W.R. Woodward (Eds.), *Psychology in twentieth-century thought and society*. New York: Cambridge University Press.
- Jordan, B. (1989). Cosmopolitical obstetrics: Some insights from the training of traditional midwives. *Social Science and Medicine*, 28 (9), 925-944.
- Kasvio, A. (1994). *Uusi työn yhteiskunta*. [New Society of Work]. Helsinki: Gaudeamus.
- Kozulin, A. (1984). *Psychology in Utopia. Toward a Social History of Soviet Psychology*. Cambridge, Mass.: MIT Press.
- Kozulin, A. (1986). The Concept of Activity in Soviet Psychology. *American Psychologist*, 41 (3), 264-274.
- Kozulin, A. (1990). *Vygotsky's Psychology*. London: Harvester Wheatsheaf.

Kramsch, C. (1993). *Context and Culture in Language Teaching*. Oxford: Oxford University Press.

Kuutti, L. & Bannon, L.J. (1991). Some Confusions at the Interface: Reconceptualizing the "interface" problem. In P. Järvinen & G. Weir & M. Nurminen, *Proceedings of the IFIP Conference on Human Jobs and Computer Interfaces*, 24-28 June, Tampere, Finland.

Kuutti, K. & Pihlaja, J. (1995). *From ethnographic fieldwork towards the change and development of work-experiences from Developmental Work Research projects*. Draft. Oulu: COMIC, ESPRIT BASIC RESEARCH PROJECT 6225.

Lave, J. (1988). *Cognition in Practice*. Cambridge: Cambridge University Press.

Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Lave, J. (1993). The practice of learning. In S. Chaiklin & J. Lave, *Understanding practice. Perspectives on activity and context*. Cambridge: Cambridge University Press.

Leiser, B. (1992). The Presence Phenomenon and Other Problems of Applying Mental Models to User Interface Design and Evaluation. In Y. Rogers, A. Rutherford & P. A. Bibby (Eds.), *Models in the mind: Theory, perspective, and application*. London: Academic Press.

Lektorsky, V. A. (1995). Activity approach and science about man. Plenary meeting 27 June 1995 at the 3rd International Congress on Activity Theory and Social Practice, Moscow.

Leont'ev, A. N. (1978). *Activity, consciousness, and personality*. Englewood Cliffs: Prentice-Hall.

Leont'ev [Leontyev], A. N. (1959/1981). *Problems of the development of the mind*. Moscow: Progress Publishers.

Leont'ev, A. N. (1972/1981). The Concept of Activity in Psychology. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology*. Armonk, NY: M.E. Sharpe.

Leont'ev, A. N. (1989). The Problem of Activity in the History of Soviet Psychology. *Soviet Psychology*, 27 (1), 22-39.

Levine, H.G. (1993). Context and scaffolding in developmental studies of mother-child problem-solving dyads. In S. Chaiklin & J. Lave, (Eds.), *Understanding practice. Perspectives on activity and context*. Cambridge: Cambridge University Press.

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Lompscher, J. (1982). Conditions and Potentialities of the Formation of Learning Activity. In R. Glaser & J. Lompscher (Eds.), *Cognitive and Motivational Aspects of Instruction*. Berlin: VEB.

Lucariello, J. (1995). Mind, Culture, Person: Elements in a Cultural Psychology. *Human Development*, 38, 2-18.

Marshall, C. & Rossman, G. B. (1989). *Designing qualitative research*. Newbury Park, CA: Sage.

Marton, F. (1981). Phenomenography - describing conceptions of the world around us. *Instructional Science*, 10, 177-200.

McTighe, J. (1992). Graphic Organizers. Collaborative Links to Better Thinking. In N. Davidson & T. Worsham (Eds.), *Enhancing Thinking Through Cooperative Learning*. New York: Teachers College Press.

Miettinen, R. (1985). Kognitiivisesta kurssididaktiikasta kehittävään työntutkimukseen. [From cognitive course didactics into developmental work research.] *Aikuiskasvatus*, 5, 147-156.

Miettinen, R. (1990). *Koulun muuttamisen mahdollisuudesta*. [Possibilities of changing the school.] Helsinki: Gaudeamus.

Miettinen, R. (1991). Transcending the traditional school learning: Teachers' work and the networks of learning. Second version (15 January 1991) of the paper presented at the Second International Congress for Research on Activity Theory, 21.-25.5.1990, Lahti, Finland.

Miettinen, R. (1993). *Oppitunnista oppimistoimintaan*. [From a Lesson to a Learning Activity.] Helsinki: Gaudeamus.

Miettinen, R. & Kinnunen, P. (1989) [1990]. *Kauppaopettajan työ ja opetuksen kehittäminen*. [Business teachers's work and developing teaching]. Helsinki: SLK.

Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis: an expanded sourcebook*. 2nd edition. Thousand Oaks, CA: Sage.

Minick, N.J. (1985). *L.S. Vygotsky and Soviet Activity Theory: New Perspectives on the Relationship Between Mind and Society*. Ann Arbor, Michigan: UMI Dissertation Information Service. {A dissertation submitted to the graduate school in partial fulfillment of the requirements for the degree Doctor of Philosophy. An authorized facsimile.}

Minick, N. (1987). Implications of Vygotsky's Theories for Dynamic Assessment. In C. Schneider Lidz (Ed.), *Dynamic Assessment*. An

*Interactional Approach to Evaluating Learning Potential*. New York: Guildford Press.

Mott, L. (1992). *Systemudvikling - den menneskelige dimension*. Handeshøjskolen i København. Det økonomiske Fakultet. Ph.D. serie 3.92. København: Samfundslitteratur.

Newman, D., Griffin, P. & Cole, M. (1989). *The construction zone: Working for cognitive change in school*. New York: Cambridge University Press.

Novak, J.D & Gowin, D.B. (1984). *Learning how to learn*. Cambridge: Cambridge University Press.

Payne, S. J. (1992). On Mental Models and Cognitive Artefacts. In Y. Rogers, A. Rutherford & P. A. Bibby (Eds.), *Models in the mind: Theory, perspective, and application*. London: Academic Press.

Peisa, S. (1994). Lectures of vocational didactics in academic year 1994-1995. Unpublished. Helsinki: Teacher Education Institute of the Finnish Business College.

Petrovsky, A.V. (1985). *Studies in Psychology. The Collective and the Individual*. Moscow: Progress Publishers.

Radzikhovskii, L. A. (1984-85). Activity: Structure, Genesis, and Units of Analysis. *Soviet Psychology*, XXIII (2), 35-53.

Reilly, R. R. & Lewis, E. L. (1991). *Educational Psychology*. New York: Macmillan Publishing.

Resnick, L. B. (1991). Shared Cognition: Thinking as Social Practice. In L.B. Resnick, J.M. Levine & S.D. Teasley (Eds.), *Perspectives on Socially Shared Cognition*. Washington, DC: American Psychological Association.

Roegholt, S. (1993). Towards a concept of multiperspective education. *Journal of Curriculum Studies*, 25 (2), 153-167.

Rogalski, J. (1993). Designing operative tools for open dynamic environment management. Paper presented 4 September 1993 at the Fifth EARLI-Conference, Aix-en Provence, France.

Rogalski, J. (1995). Application of Piaget's theory in corporate settings: From genetic epistemology to work analysis. Paper presented 29 August 1995 at the Sixth EARLI-Conference, Nijmegen, The Netherlands.

Rogers, Y. (1992). Introduction. In Y. Rogers, A. Rutherford & P.A. Bibby (Eds.), *Models in the mind: Theory, perspective, and application*. London: Academic Press.

- Rogoff, B. (1990). *The apprenticeship of thinking*. Oxford: Oxford University Press.
- Rogoff, B. & Lave, J. (Eds.). (1984). *Everyday Cognition: Its Development in Social Context*. Cambridge, Mass.: Harvard University Press.
- Rogoff, B. & Wertsch, J.V. (Eds.). (1984) *Children's Learning in the "Zone of Proximal Development"*. San Fransisco: Jossey-Bass.
- Rudestam, K.E. & Newton, R.R. (1992). *Surviving your dissertation*. Newbury Park: Sage.
- Schurig, V. (1988). Tätigkeit or Activity. *Multidisciplinary Newsletter for Activity Theory*, 1 (1/2), 3-5.
- Senge, P. (1994). *The Fifth Discipline Fieldbook. Strategies and Tools for Building a Learning Organization*. New York: Bantam Doubleday Dell.
- Silverman, D. (1993). *Interpreting Qualitative Data*. London: Sage.
- Simon, B. (Ed.). (1957). *Psychology in the Soviet Union*. London: Routledge & Kegan.
- Simon, J. (1987). Vygotsky and the Vygotskians. Review Essay, *American Journal of Education*, 609-613.
- Simon, J. and B. (1963). *Educational Psychology in the U.S.S.R.* London: Stanford University Press.
- Stake, R. E. (1995). *The Art of Case Study Research*. Thousand Oaks: Sage.
- Strauss, A. L. (1987). *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.
- Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research. Grounded Theory Procedures and Techniques*. Newbury Park: Sage.
- Talyzina, N.F. (1981). *The psychology of learning*. Moscow: Progress Publishers.
- Tesch, R. (1990). *Qualitative Research. Analysis, Types and Software Tools*. London: Falmer Press.
- Tharp, R. (1993). Institutional and Social Context of Educational Practice and Reform. In E.A. Forman, N. Minick & A.C. Stone (Eds.), *Contexts for Learning. Sociocultural Dynamics in Children's Development*. New York: Oxford University Press.

- Tharp, R.G. & Gallimore, R. (1988). *Rousing minds to life: Teaching, learning and schooling in social context*. Cambridge: Cambridge University Press.
- Toikka, K. (1984). *Kehittävä kvalifikaatiotutkimus*. [Developmental Qualification Research]. Valtion koulutuskeskuksen julkaisusarja B n:o 25. Helsinki: VAPK.
- Torvinen, L. & Härkäpää, L. & Tommila, T. (1992/1994). *Evaluation and Orientation - Teachers in a Process*. Publications of the Teacher Education Department of the Finnish Business College, Nr. 2. Helsinki: SLK.
- Torvinen, L. (in press). Activity Theoretical Perspective. In J. Pieters & J. Brandsma (Eds.), *Complex Teaching and Learning Environments in Education for Business in Europe*. Utrecht: Lemma.
- Valsiner, J. (1988). *Developmental Psychology in the Soviet Union*. Kent: Harvester Press.
- Van der Veer, R. (1984). Early Periods in the Work of L.S. Vygotsky: The influence of Spinoza. In M. Hedegaard, P. Hakkarainen and Y. Engeström (Eds.), *Learning and teaching on a scientific basis: Methodological and epistemological aspects of the activity theory of learning and teaching*. Aarhus: Aarhus Universitet. Psykologisk institut.
- Van der Veer, R. & Valsiner, J. (1991). *Understanding Vygotski*. Oxford: Blackwell.
- Virkkunen, J. (1990). *Johtamisen rationalisointi vai kehityksen hallinta*. [Rationalising of management or managing of development] Helsinki: Julkishallinnon kouluttajat ry.
- Virkkunen, J. (1995). *Työpaikkatarkastuksen ristiriidat ja niiden ylittämisen mahdollisuudet* [Inner contradictions in labour protection inspections and the prospects of overcoming them].<sup>9</sup> Helsinki: Työministeriö.
- Vygotsky, L.S. (1935/1978). *Mind in Society*. Cambridge: Harvard University Press.
- Vygotsky, L.S. (1981). The Instrumental Method in Psychology. In J.V. Wertsch (Ed.), *The concept of activity in Soviet psychology*. Armonk, NY: M.E. Sharpe.
- Vygotsky, L. (1986). *Thought and Language*. Cambridge, Mass.: The MIT Press.
- Wartofsky, M.W. (1979). *Models*. Dordrecht: Reidel.



Wertsch, J.V. (Ed.). (1981). *The concept of activity in Soviet psychology*. Armonk, NY: M.E. Sharpe.

Wertsch, J.V. (1985). *Vygotsky and the social formation of mind*. Cambridge, Mass.: Harvard University Press.

Wertsch, J. (1987). Collective memory: Issues from a sociohistorical perspective. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition* 9(1), 19-22.

Wertsch, J. (1991). A Sociocultural Approach to Socially Shared Cognition. In L.B. Resnick & J.M. Levine & S.D. Teasley (Eds.), *Perspectives on Socially Shared Cognition*. Washington, DC: American Psychological Association.

Wertsch, J.V. & Smolka, A.L.B. (1993). Continuing the dialogue: Vygotsky, Bakhtin, and Lotman. In H. Daniels (Ed.), *Charting the agenda. Educational Activity after Vygotsky*. London: Routledge.

Yin, R. K. (1994). *Case Study Research. Design and Methods*. 2nd edition. Thousand Oaks: Sage.